



# British Columbia **Green Buildings Directory**

February 2000



**Ministry of Employment and Investment**  
B.C. Trade and Investment Office

**Cover photos (top to bottom):**

- Malaspina College photo courtesy of wade williams de Hoog + D'Ambrosio architects in joint venture;
- The C.K. Choi Building for the Institute of Asian Research, photo courtesy of Keen Engineering Co. Ltd.;
- Library Square, photo courtesy of Keen Engineering Co. Ltd.

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## Message from the Minister

It is my pleasure to introduce you to British Columbia companies involved in the green building industry. From design to construction, British Columbia companies are leading the way in meeting the growing global demand for buildings and communities that balance environmental sensitivity and occupant health with realistic economic goals.

Many of the firms profiled in this publication are already providing their goods and services to international clients. I invite you to contact any of the companies in this directory and explore shared opportunities for success in this dynamic industry.

If you need additional information on our green building industry, or if you require assistance in meeting with British Columbia companies and organizations, please contact the British Columbia Trade and Investment Office.

Mike Farnworth  
Minister of Employment and Investment

# **The British Columbia Trade and Investment Office**

The British Columbia Trade and Investment Office (BCTIO), an agency of the provincial government, provides one-stop access for both investors and exporters.

The BCTIO focuses on advancing investment opportunities, fostering industry development and enhancing trade in British Columbia's goods and services.

The BCTIO assists investors and exporters by:

- informing investment and export proponents about potential joint venture partners, consultants, sources of capital and industrial land locations;
- identifying and accelerating the development of key private sector investment projects;
- providing information on government policies, programs and regulatory requirements;
- establishing contacts and arranging meetings between our clients, regulators and decision makers;
- coordinating projects and sectoral opportunities that have both trade and investment components; and
- serving as a link with other provincial and federal government departments and agencies involved in trade and investment activities.

The design and manufacture of green buildings and sustainable communities comprises a key sector of British Columbia's economy supported by BCTIO staff. For further information on British Columbia expertise in green buildings and sustainable communities, contact:

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## **Green Buildings and Sustainable Communities**

**“Striking the Balance - Integrating Ecological Measures with Real Estate and Community Development.”**

### **GREEN BUILDING**

Green building is a way to balance social and environmental goals with economic considerations. More specifically, it is the integration of resource-efficient, environmentally responsive, and community and culturally sensitive design into development projects. Green buildings use available energy, land, water and material resources as efficiently and effectively as possible.

Through the efficient use of resources, green buildings can often be built without incurring any additional capital costs when compared with equivalent conventional construction projects. After the initial capital costs, green buildings outperform their conventional counterparts, since resource efficient design features reduce operating costs over the life span of the building.

Technological improvements and the availability of research data that demonstrates operating efficiencies and “payback” time are making green development a sound economic choice. The adoption of a green design can reduce capital and operating costs while improving comfort for occupants and increasing property values. In addition, today’s architects are skilled in balancing esthetics with sustainability.

As the relative capital cost of green building is decreasing and the long-term cost savings have been proven, green building is now a strong choice from both an economic and environmental perspective.

### **BRITISH COLUMBIA'S INDUSTRY**

A growing number of British Columbia companies have proven green development expertise. From the design stage through to construction and finishing, British Columbia architects, engineers, environmental consultants, urban planners and landscape architects are working together to create improved living and working environments for people.

British Columbia’s building professionals are able to provide all the services needed to complete your green building projects. Our companies have experience working together, through integrated design teams, in completing projects for their customers.

The integrated design team structure allows expertise to be combined as required for a specific project. This approach has all the companies on the design team working together on the development from the initial design stage through to the completion of construction. It also stops the developer from paying for expertise that is not required, as only the necessary elements for the project are used on the design team. British Columbia companies have used this integrated design structure successfully, resulting in many fine examples of green buildings.

Some examples of British Columbia green buildings include the C.K. Choi Building at the University of British Columbia, the Revenue Canada Building in Surrey, used as a case study for the Green Buildings Challenge '98, and "2211 West 4<sup>th</sup> Avenue" in Vancouver, which has been used by the Rocky Mountain Institute as an example of a green mixed-use infill development. In addition to these examples, our companies have produced many other excellent examples of British Columbia designed and built green buildings.

With leading-edge design and technology, British Columbia companies are in a position to export their expertise. This is an industry that will continue to expand as pressures on the environment increase and greenfields are reduced. In the following pages you can find information on the various British Columbia companies working on making green buildings and sustainable communities a reality both in British Columbia and around the world.

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## Company Profile

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### Acton Johnson Ostry Architects Inc.

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**City,Prov:** Vancouver, BC

**Phone:** (604) 739-3344

**Postal/Zip:** V6J5H4

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**Name:** Mr. Greg Johnson

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**Pos Title:** Principal

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**Tel:** (604) 739-3344

**Name:** Mr. Mark Ostry

**Pos Title:** Principal

**E-Mail:**

**Tel:** (604) 739-3344

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**Branches:** Vancouver

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#### Business Description:

Acton Johnson Ostry Architects Inc is a small architectural design practice located in Vancouver, BC, comprised of three principals and three employees. Their recent work falls in the institutional, residential and commercial categories, with about half of the projects being located outside of the Lower Mainland of British Columbia. Challenging projects possessing unique client demands, difficult site conditions, or restrictive budgets are of particular interest to the firm. In all cases attempts are made to produce a high level of quality in each project through careful attention to the site and environmental conditions, building details, energy consumption and material selection.

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#### Active Geographic Market(s):

British Columbia

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#### Recent Project(s):

**Name:** Skidegate Elementary School

**Description:** Constructed for the adjacent communities of Queen Charlotte City and Skidegate, the design of this 300 student elementary school reflects the traditions of the local industries - forestry and fishing - as well as the First Nation community in which it is

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## Company Profile

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located. Due to its remote location (with high fuel prices) and the extreme maritime climate in which the project is situated, particular attention was paid to the building envelope design and the mechanical system. A BC Hydro PowerSmart grant was received early in the design process in order to optimise the performance of the electrical and mechanical systems, as well as to model the interior spaces to maximize daylight penetration to the interior, of particular concern with the many days of overcast weather. Completed 1999, budget \$6.3 million.

**Name:** Old Massett Primary School, Haida Gwaii, BC

**Description:** Designed for a small first nations community on the northern tip of Haida Gwaii (Queen Charlotte Islands), this project respected local building materials and construction techniques, and made use of local labour. The particularities of the site and climate, along with the particular requirements of the client led to a structure which reflected historical structures of the first nation community. (Canadian Architect Award of Excellence, 1993).  
Completed 1995, budget \$2 million.

**Name:** Healthy House, Vancouver, B.C.

**Description:** In conjunction with Chris Mattock of Habitat Design + Consulting, the construction of this demonstration project resulted from the project team winning a Canada Mortgage & Housing Corporation "Healthy Housing Design Competition". The infill housing project was meant to demonstrate innovation in the field of housing in the areas of energy and material conservation, improving internal air quality, minimising servicing requirements, and optimising use of land resources.  
Completed 1994, budget \$175,000.

**Name:** Har El Synagogue, West Vancouver, BC

**Description:** Located on a difficult site at the intersection of two major highways, with a significant water course and restrictive aquatic protection zone, pedestrian access is by means of a footbridge. The project incorporates significant symbolic elements to reflect the cultural and religious values of the community. (Canadian Architect Award of Excellence, 1997).  
Completed 1997, budget \$2.5 million.



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## Company Profile

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### Aplin & Martin Consultants Ltd.

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**Pos Title:** Principal

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**Tel:** (604) 597-9058

---

**Branches:** Nanaimo, Surrey

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#### Business Description:

Since its incorporation in 1968, Aplin & Martin Consultants Ltd. has evolved from a civil engineering company into a multi-disciplinary firm of engineers, planners, surveyors and landscape architects. Today, Aplin & Martin Consultants Ltd. and its affiliated companies provide expertise in project management, civil engineering, urban and regional planning, architecture, land surveying, and landscape architecture.

Aplin & Martin Consultants Ltd. still prides itself on small company values. Our company structure is based on projects teams that work within the larger company framework to ensure personalized service for our clients. Aplin & Martin's operation is fully computerized, and our staff participate in continuing education programs to be fully conversant in new trends and technologies.

Our clients can benefit from our knowledge and experience in dealing with political, regulatory and technical design issues. We take care of managing the details and reducing risk within a time and cost sensitive environment. Aplin & Martin Consultants Ltd. anticipate the needs of the client and provides innovative solutions to complex problems.

Our client base is drawn from the public, private and non-profit sectors, and includes municipal governments, First Nations' communities, private individuals and companies, local business and community organizations.

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## Company Profile

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### Active Geographic Market(s):

Canada  
United States  
Philippines

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### Recent Project(s):

**Name:** Wetland Creation, Monroe, Washington

**Description:** For the restoration of a 213 acre gravel quarry, Aplin & Martin Consultants Ltd. proposed the creation of a wetland and interpretative facilities. The concept features nesting islands and peninsulas which offer protection to fauna against predators, as well as viewing towers, blinds and the moat to facilitate wildlife observation.

The diverse shoreline, varying water depths, and a variety of plants combined to re-create natural habitat and compliment the adjacent fen.

**Name:** Morgan Park, South Surrey, B. C.

**Description:** Aplin & Martin Consultants Ltd. worked with the client as their consultant, providing civil engineering and legal surveying during the preliminary detailed design and construction stages of this Morgan Creek Golf Course and residential development. The Morgan Creek development includes an 18 hole championship golf course and 550 homes. The project included two sewage pumping stations, a three kilometre pressure sanitary trunk sewer and drainage facilities, which were incorporated into the golf course system of ponds. In addition, we worked closely with the Ministry of Environment to provide three fish ladders along Morgan Creek.

Morgan Creek Golf Course is the headquarters of the British Columbia Professional Golfing association, and the housing development was the location for the 1996 Street of Dreams.

**Name:** Gery Park

**Description:** This proposed regional park is Aplin & Martin Consultants Ltd.'s design solution to the restoration of a gravel quarry. The concept revolves around a body of water in which native species of fresh water fish would be introduced. A pedestrian trail meandering on the shore of the lake connects with the municipal path network and leads to the man-made island and its beach.

The picnic area created in the preserved Douglas Fir Grove offers views of the lake and the surrounding farmland.

**Name:** Engelbrecht Park, Chilliwack, B.C.

**Description:** Aplin & Martin Consultants Ltd. prepared a reclamation plan for a proposed 27 acre gravel quarry. The plan keeps a majority of the pit to be used as a lake for recreation activities. The bank will be reshaped to a more natural contour and revegetated with native plants adjacent pedestrian and equestrian trails, and features picnic and seating areas, as well as canoe launching.

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## Company Profile

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**Name:** Airport Executive Park, Richmond, B.C.

**Description:** This three storey office building is located in a maturely landscaped technology park in Richmond. The building accommodates both singles and multi-tenant offices and has been leased prior to commencement of working drawings.

The building was constructed of concrete and steel panels with high performance glazing on a steel and concrete structure. Only low embodied energy materials and low off-gassing materials were specified. The electrical and mechanical systems reduce the buildings energy consumption and improve the indoor air and lighting quality.

The building is located on the site in such a way as to maintain as much of the existing trees as possible. An extensive landscape proposal provides for proper management and improvement of the site including wildfowl habitats, wetland and riparian management.

**Features:**

**Construction:** Concrete and steel; high performance thermal break technology; advanced air barrier system.

**Envelope:** Zinc cladding panels; high performance glazing.

**Interior:** Granite, marble and specialty woods.

**Amenities:** Bicycle lockers; showers.

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## Company Profile

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### Arnold Nemetz & Associates Ltd.

**Address:** 2083 West 4th Avenue

**City,Prov:** Vancouver, BC

**Phone:** (604) 736-6562

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#### Key Contact(s):

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**Pos Title:** Principal

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#### Branches:

Vancouver

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#### Business Description:

Arnold Nemetz and Associates is firmly established in Western Canada's Electrical Consulting profession. Offering a complete scope of electrical engineering services, we have successfully completed over 5,000 projects within British Columbia, North America, and worldwide.

Our firm is comprised of 28 employees. We are fully computerized with network of 18 CADD stations, engineering design stations, and support equipment. Our focus is to be well-versed in all aspects of electrical engineering and to apply our expertise to our client's interests.

Our staff members are dedicated to understanding the client's project requirements. Their aptitudes and abilities encompass all facets of the electrical engineering industry. From professional engineers to designers with an electrical background, from CADD experts to lighting design specialists, this blend of talents coupled with experience ensures results and service of the highest quality.

With the strength and experience of our staff we can offer a complete scope of services including:

- Electrical power systems design
- Lighting system design
- Concept design
- Power smart technology
- Tendering
- Energy management
- Security systems

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#### Active Geographic Market(s):

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## Company Profile

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Canada

United States

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### **Recent Project(s):**

**Name:** Royal Bank, New Westminster, B.C.

**Description:** Provided electrical design, specification and supervision to the Royal Bank Office Building.

**Name:** Discovery Park, Burnaby, B.C.

**Description:** Provided electrical design, specification and supervision to both the Pacific Blue Cross Headquarters and HSBC Call Center.

**Name:** Crestwood Technology Centre, Richmond, B.C.

**Description:** Electrical design, specification and supervision for 10 buildings in this development.

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## Company Profile

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### Ballard Generation Systems

**Address:** Unit C - 4242 Phillips Avenue

**City,Prov:** Burnaby, BC

**Phone:** (604) 421-7475

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**Web Site:** [www.ballard.com](http://www.ballard.com)

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#### Key Contact(s):

**Name:** Mr. Jorge Barrigh

**Pos Title:** Business Development Manager

**E-Mail:**

**Tel:** (604) 421-7475

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**Branches:** Burnaby

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#### Business Description:

Ballard Generation Systems is a venture between Ballard Power Systems, GPU International Inc., ALSTOM SA and EBARA Corporation.

GPU International is a worldwide energy company based in New Jersey with a history of leadership in promoting advanced power technologies. ALSTOM, based in France, is a world leader in the design and manufacture of equipment and systems for the power generation and transmission industries. EBARA, based in Japan, is globally recognized as a major developer, manufacturer and distributor of fluid machinery and systems, precision machinery and environmental engineering systems and as a leader in zero emission technology.

Ballard Generation Systems is focused on developing a range of fuel cell power products that will provide reliable, clean and high quality power for the under one megawatt capacity market.

Ballard Generation Systems' initial product is a 250 kilowatt fuel cell power plant that converts natural gas to high quality power with extremely low levels of air emissions. This product will provide primary or back up power to commercial and industrial customers such as hotels, hospitals, manufacturing facilities, and retail shopping centers.

For those with very sensitive equipment or automated industrial processes, Ballard Generation Systems power plants will offer reliable, clean power free from disruptions or distortions.

In addition to this high quality electrical output, customers can take advantage of the thermal output from the power plant and use it for hot water, space heating, and industrial processes.

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## Company Profile

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To meet additional market needs, Ballard Generation Systems plans to introduce versions of the 250 kilowatt product that will operate on fuels other than natural gas, including propane, hydrogen, and anaerobic digester gas from waste water treatment facilities.

For customers requiring less power, Ballard Generation Systems is also beginning to develop a line of one to ten kilowatt products for a wide range of applications, from industrial to commercial, and from emergency to remote power.

As energy consumers demand new products and reliable, clean energy solutions, Ballard Generation Systems will develop a variety of innovative products to meet market needs.

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### Active Geographic Market(s):

North America

Europe

Japan

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### Recent Project(s):

**Name:** Naval Surface Warfare Center, Crane, Indiana

**Description:** This is a field trial of a 250 kilowatt-class natural gas fuel cell power generator. Cinergy Technology Inc. is operating this generator at the Crane location during the field trial program.

Based on test and operational data that is obtained during this trial, design improvements will be made for the next generation commercial 250 kilowatt power generator.



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## Company Profile

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### BC Research Inc.

**Address:** 3650 Westbrook Mall

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### Key Contact(s):

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**Name:** Dr. James Hill

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**Tel:** (604) 224-4331

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**Branches:** BCR Alberta, Vancouver

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### Business Description:

BC Research Inc. is a unique multidisciplinary technical development company which has an international leadership position in three technology market areas - environmental sciences and engineering, biotechnology and advanced systems engineering. From a strong customer base in the Pacific Northwest, BC Research Inc. now operates in a global marketplace. The company offers a complete range of services for problems requiring innovative sustainable solutions. BC Research Inc. is privately held by Vancouver interests who are committed to the success of the company and to building a sustainable business in technology innovation and service.

BC Research Inc. offers specialist service in assessing the impact of hazardous work environments and toxic materials on worker health and safety. Their expertise in occupational hygiene, toxicology, process engineering and chemical analysis is used in the collection and analysis of air samples, dermal patches, clothing, urine wipe tests and fluorescent tracers to pinpoint the source and severity of possible problems. Their expertise in these areas also aids in the development of cost effective management and process controls.

BC Research Inc. does evaluation and monitoring of workplace conditions to understand and then to improve and protect employee health. They identify hazards from single and multiple exposures prior to recommending mitigation procedures. They conduct extensive research programs to map and identify worker exposure issues, toxicological assessment of gases and other contaminants, effectiveness of escape respirators, physical energy hazard assessments, and respiratory and dermal exposure of workers to contaminants. In many cases specialized testing methodologies, analytical techniques and sampling procedures have been developed in order to complete these studies.

BC Research Inc. Occupational and Environmental Risk Management Group helps to clarify indoor air



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## Company Profile

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quality and related ergonomic issues and then identify controls which will significantly reduce or eliminate air quality problems and other workplace stressors. Services are available in the following areas:

- Participation on building design teams;
- New product selection and research;
- Interpretation of indoor air quality standards;
- Evaluating and assessing air quality;
- Investigating odor complaints;
- Evaluating biological contamination;
- Identifying temperature-humidity factors;
- Conducting long term studies on contamination;
- Determining the effectiveness of ventilation systems;
- Developing criteria for site decontamination;
- Preparation of duct cleaning specifications;
- Emergency response to indoor air concerns;
- Assisting clients in understanding and responding to regulatory requirements;
- Remediation project management and verification.

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### Active Geographic Market(s):

Canada  
United States  
China  
Southeast Asia

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### Recent Project(s):

**Name:** Vancouver International Airport Authority

**Description:** Assessment and management of health effects related to large scale construction impact on tenants and members of the public. A senior professional at BC Research Inc. led a team of engineers, physicians and consultants to assess and then control the serious health impacts on more than 100 workers that occurred shortly after the start of a complex complete renovation to the 30-year-old domestic terminal building.

**Name:** Taxation Office

**Description:** Deterioration of roof top heating units resulted in low level odour (mercaptans in natural gas) entering the office area. The odour was sporadic, and when tested by the gas company no source could be found. BC Research Inc. occupational hygienists were able to demonstrate very low concentrations of mercaptan entering the office area and replacement components of the heater unit eliminated the problem. A major labour relations situation was averted.

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## Company Profile

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**Name:** Ski Resort

**Description:** Renovations to a ski shop, offices and instructors change area at a major ski resort resulted in discomfort, odors and uncontrolled heat and cold. BC Research Inc. staff investigated and were able to demonstrate that several of the rooms were inadequately ventilated since no changes to the ventilation system were done when the rooms were modified. Re-engineering of the ventilation eliminated the problems.

**Name:** Research Complex

**Description:** Prior to increasing staff numbers by more than 50%, management of a four-storey electronics research facility wanted to know whether the ventilation system would accommodate the increased heat and staff loading. Studies on air supply volume and distribution demonstrated the capabilities of the building to meet the expansion needs.

**Name:** Regional Bank

**Description:** Workers at a regional branch of a major Canadian bank suffered skin rashes and irritation every time they entered the branch. BC Research Inc. staff investigated and demonstrated the presence of biological contamination resulting from a sewer back-up that had occurred several times over the previous months.

**Name:** Office Complex

**Description:** Hospitalization of workers occurred after carbon monoxide from a roof top exhaust was re-entrained into the air intake system. BC Research Inc. staff completed an in-depth assessment of the building environment to determine the cause of illness. Modification to the exhaust prevented future occurrences of this event.

**Name:** Building Management Firm

**Description:** BC Research Inc. trainers provided in-depth training to more than 30 regional managers and engineers on indoor air quality assessment and control. Instructions covered the major health and discomfort issues, assessment techniques, control options and development remediation project specifications. Regulatory requirements for indoor air quality risk assessment and ventilation inspection were discussed in detail.

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## Company Profile

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### Blohm Peterson Vollan Galloway Ltd.

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**Tel:** (250) 388-5312

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**Branches:** Victoria

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#### Business Description:

Blohm Peterson Vollan Galloway Ltd. provides specialist consulting in the field of structural engineering for buildings. Particular fields of specialization include light wood framing, heavy timber framing, light gauge steel stud framing, rammed earth construction and straw bale, seismic design, and restoration of historic buildings.

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#### Active Geographic Market(s):

Canada

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#### Recent Project(s):

**Name:** Young Building, Camosun College

**Description:** Seismic restoration of a 3 storey, 1913 concrete and masonry heritage building.

**Name:** Straw Bale House, Sidney, B.C.

**Description:** 2 storey straw bale residence.

**Name:** Rammed Earth Wall, Saltspring Island, B.C.

**Description:** 2 storey (5.5m) freestanding rammed earth wall and foundation.

**Name:** Rammed Earth House, Saltspring Island, B.C.

**Description:** 2 storey rammed earth and heavy timber residence.

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## Company Profile

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- Name:** Learning Resource Centre, Camosun College  
**Description:** 3 storey, 3700 m2 classroom and administration building.
- Name:** Engineering Office Wing, University of Victoria  
**Description:** 5 storey, 2400 m2 office facility.
- Name:** Engineering Lab Wing, University of Victoria  
**Description:** 3 storey, 12000 m2 facility for the School of Engineering
- Name:** Education/Social Sciences Build. Malaspina Coll.  
**Description:** 3 storey, 3700 m2 classroom and administration building.
- Name:** Developmental Educ. Build., Malaspina College  
**Description:** 2 storey, 1700 m2 classroom and administration building.

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## Company Profile

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### Bunting Coady Architects

**Address:** Suite 300 - 171 Water Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 685-9913

**Postal/Zip:** V6B1A7

**Fax:** (604) 685-0694

**E-Mail** tcoady@buntingcoady.com

**Web Site:** www.buntingcoady.com

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#### Key Contact(s):

**Name:** Mrs. Teresa Coady

**Pos Title:** Partner

**E-Mail:** tcoady@buntingcoady.com

**Tel:** (604) 685-9913

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**Branches:** Vancouver

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#### Business Description:

Bunting Coady Architects is an innovative architectural practice based in Vancouver, British Columbia. The principals and associates of Bunting Coady Architects bring many years of experience in design and management to each and every new project. Our broad and specific experience with the issues currently facing commercial projects enable us to focus on innovative solutions unique to each client situation and can make the difference between ordinary planning efforts and extraordinary ones.

Sustainable buildings that achieve exemplary levels of occupant comfort at a true market driven budget are Bunting Coady Architects' hallmark and our particular area of expertise. The sustainable design parameters that we adhere to in practice protect and preserve the clients' budget and have enabled us to successfully construct healthy, low impact buildings on a consistent basis.

Bunting Coady Architects specialize in the design of high-technology office and production facilities. We have worked extensively with developers, institutions and project managers to design many multi-tenant high-tech buildings and entire high-tech centres. Bunting Coady Architects was chosen for commitment to excellence in design and consideration for the environment. Other examples of our business success include the Knowledge Network "Footprints on the Earth" show featuring the office's work and the C-2000 Advanced Commercial Buildings national award.

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#### Active Geographic Market(s):

Canada

United States

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## Company Profile

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### Recent Project(s):

**Name:** Westport Innovations, Vancouver, B.C.

**Description:** Westport Innovations is a 27,000 square foot complete reconstruction in Vancouver. This transformation of a 1950s warehouse space into a high-tech alternative fuel research facility features a total interior renovation as well as the construction of a contemporary exterior which allows for this facility to easily fit into the more retail/residential neighborhood. The construction employs the latest in building envelope technology and energy efficient design. Westport Innovations is a highly successful and economical project.

The Westport building is Phase I of a two building scheme. Phase II will accommodate a 3 storey, 60,000 square foot, research and development building with one level of below grade parking.

**Name:** Pacific Blue Cross Building, Burnaby, B.C.

**Description:** The Pacific Blue Cross building is a unique architectural response to the corner of Canada Way and Gilmore Way. Its curving glass corner gives prominence to the corner plaza entry. The dramatic building is complemented on the interior with large efficient floor plates with special consideration given to security design. Pacific Blue Cross was designed to function efficiently as a flexible multi-tenant building although it was customized to suit a single tenant occupancy. This design allows long range flexibility to the building owner to respond to future market conditions.

The high-performance envelope design features advanced thermal break and insulation technology. The four-pipe fan coil mechanical system provides 100% fresh air ventilation air with a downsized chiller.

High quality construction techniques allow for optimum building performance. The building is constructed of metal cladding, concrete, steel and glass and features an energy efficient envelope. Healthy building elements include low off-gassing materials throughout to ensure excellent indoor air quality.



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## Company Profile

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**Name:** MDSI Airport Executive Park, Richmond, B.C.

**Description:** This 3 storey office building is located in a mature landscaped technology park in Richmond. The building accommodates both single and multi-tenant offices.

The building is constructed of concrete walls and steel panels with high performance glazing on a steel and concrete structure. Only low embodied energy materials and low off-gassing materials were specified. The mechanical systems reduce the building's energy consumption and improve the indoor air and lighting quality by using a high efficiency, four pipe fan coil system which heats, cools and ventilates the interior.

The building is located on the site to maintain as many of the existing trees as possible. An extensive landscape plan provides for proper management and improvement of the site including wildfowl habitats, wetland and riparian management.

Storm water is drained from the roof and fed through the waterfall and pond at the front of the building. Existing mature trees were incorporated into the design in their existing location or transplanted off-site and replanted around the building upon completion.

**Name:** Crestwood Corporate Centre, Richmond, B.C.

**Description:** The park is located on the Fraser River delta and offers jogging trails, fountains, a protected watercourse and public plazas, cycle storage and proximity to a public golf course.

Each building has been designed to offer single or multi-tenant occupants maximum flexibility. All buildings have a central lobby complete with skylights and two storey glazing for abundant natural lighting and are detailed with first class materials such as granite, wood and stainless steel. Adjacent entry plazas with fountains, decorative paving and lush landscaping make Crestwood buildings unique in this market.

In conjunction with efficient operating performance, the project incorporates a number of environmentally responsible measures. Grass paved parking areas allow filtration of surface run-off water and additional green space. Skylights over the entry stairs bring natural daylight into the centre of the building. The building and parking areas are poured on recycled crushed sub-base. All wood and paper waste is recycled during construction. No rainforest woods are used, woods are farmed types. No wall vinyls are used and plastic laminates are reduced. All paints and adhesives are low off-gassing materials. The ventilation system is a high efficiency four pipe fan coil system providing fresh air. The Crestwood Building 2 recently was awarded the BOMA Toby Award for Building of the Year.

Building 7 was built to traditional energy standards while its twin, the award winning Building 8, was subsequently constructed to more rigorous energy parameters under the C-2000 Advanced Commercial Building Award programme. Building 8 now serves as a working model for energy-efficient design of market buildings and is designed to perform at 50% of Ashrae 90.1.

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## Company Profile

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**Name:** ClearNET Building, Burnaby, B.C.

**Description:** The ClearNET Building, although occupied by a single tenant, was designed to function as a first class multi-tenant office building. A special code equivalency for the lobby allows existing efficiency and flexibility as well as being a high design front entry for a multitude of tenants.

Landscaping to the site incorporates grass-paved areas to the parking lot and low exterior maintenance indigenous planting complemented by large numbers of trees to maintain the park-like setting and to provide shading to the building.

Specially engineered low embodied energy concrete panels have been used on the exterior walls with high performance glazing. Exceptional indoor air quality is achieved with an energy-efficient heating and ventilation system which maximizes fresh air levels to personalized zones in the building.

The building meets stringent "post-disaster" standards.

**Name:** Broadway Tech Centre, Vancouver, B.C.

**Description:** Broadway Tech Centre is located on an 18 acre city block in the City of Vancouver. It is a high-tech business park comprising eight low rise buildings targeting companies specializing in information technology. The total office floor area will be 800,000 sq. ft. (86,000 sq. m) and five of the new buildings will be located over an existing warehouse which will be retained and, in part, used for secured underground parking.

The buildings are laid out in a relaxed pedestrian oriented setting and are interconnected by way of covered walkways and bridges. South-facing plazas, reflecting pools and soft landscaping of trees, vines and shrubs provide elegant and contemplative surroundings. A warehouse component, located under the southern portion of the site, will provide 150,000 sq. ft. (10,000 sq. m) of distribution and/or manufacturing at build-out.

The office buildings range from 80,000 to 170,000 sq. ft. and offer the flexibility of either single or multi-tenant uses. On-site amenities are provided by way of cafes, food services, fitness centre, bank outlet within the campus and a retail node is planned at the lower warehouse level on the south west corner of the site. As Vancouver's SkyTrain transit system is extended into this area, a new station will be developed across the street providing excellent access to the Centre. Cyclists and pedestrians will be encouraged with the implementation of an urban Greenway connection to the City and the inclusion of showers, lockers and bicycle storage into the complex.



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## Company Profile

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**Name:** Bank of Nova Scotia, North Vancouver, B.C.

**Description:** The redevelopment of the site, situated next to City Hall and a major public plaza, has spawned the redesign of the plaza as a better introduction to the fore court of the Civic Centre.

The building is oriented to allow heat gain in the winter and is terraced to the south west to give access to roof gardens and panoramic views of downtown Vancouver and English Bay. All construction materials, fixtures, fittings were evaluated for their environmental performance and only low embodied energy materials and low off-gassing materials were specified.

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## Company Profile

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### Busby + Associates Architects Ltd.

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**Address:** 1050 Homer Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 684-5446

**Postal/Zip:** V6B2W9

**Fax:** (604) 684-5447

**E-Mail:** cstrauss@busby.ca

**Web Site:** www.busby.ca

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#### Key Contact(s):

**Name:** Mr. Peter Busby

**Pos Title:** Principal

**E-Mail:** pbusby@busby.ca

**Tel:** (604) 684-5446

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**Branches:** Vancouver

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#### Business Description:

We are a full service design, planning and architectural consulting practice committed to very high quality projects for all clients; modern, functional designs; applying advanced technology to all projects; giving the highest degree of personal service; and incorporating sustainable technologies in our designs, and in our business practice.

As a mid-size diversified practice, we are involved in all types of projects, from industrial design to very large comprehensive site planning projects. We are good listeners, and enjoy working with groups searching for progressive and innovative solutions for their projects. We regard our strengths to be in the area of technically complex projects for commercial and residential developers, and institutional clients.

The firm is deeply committed to environmental sustainability, using a variety of design techniques for energy conservation, reduced negative global impact, and a conscious recycling of materials. Our success has been proven through award recognition for completed buildings, documented reductions in energy consumption during operation, and cost reports that indicate no premium on capital costs for integrating a green agenda into the design. Busby + Associates has the largest portfolio of completed "green" projects in Canada, possibly in North America, and is considered Canada's leading "green" architecture firm.

Our projects have won many design awards and are widely published. We make strong and consistent volunteer contributions to our Community and Profession. Peter Busby was awarded a Fellowship in the Royal Architectural Institute of Canada in 1997.

Our design proposals are prepared with a conviction that functional and visual design excellence in architecture yields distinctive projects that are a pride to their owners, their users, and the Community.

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## Company Profile

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### Active Geographic Market(s):

Canada

United States

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### Recent Project(s):

**Name:** York University Computer Science Building

**Description:** North York, Ont.

Responding to a surge in enrolment pressure, in 1998 York University commissioned Busby + Associates Architects, in joint venture with Van Nostrand Dicastri Architects, to design a new dedicated Computer Science facility.

The "green" design elements are both simple and complex. The fundamental approach is to design a "cold" climate, highly insulated building that capitalizes on solar gain and heat absorption and that has the capability of performing as a naturally ventilated "tropical" structure. The design incorporates a central atrium, thermal "chimneys" on the roof, and a large component of operable perimeter glazing. The result is a stunning energy consumption, less than 50% of comparable buildings.

**Name:** Telus Office Building, Vancouver, B.C.

**Description:** The client and the architects developed a strategic "green" option to recycle/reuse their existing building, saving landfill, energy, and resources, and establishing the telephone company as a leader in the community, working towards environmental sustainability. The revitalized building provides the client with a new and elegant interior in a downtown location to better serve customers in a vigorous and volatile market.

The exterior revitalization is both futuristic and technically advanced - an open, layered and sophisticated new "skin" envelopes the old building shell. A new double-glazed, fritted and frameless glazing system with operable windows is suspended from the existing building face, providing opportunities for a sophisticated natural ventilation system. The new exterior cladding thus creates the first triple-skinned green building solution in Canada.

The project has been submitted as a "leading-edge" entry to the Commercial Building Incentive Program sponsored by Natural Resources Canada. The targeted energy goals are approximately 65% of the consumption levels stipulated by the Vancouver Energy By-Law, making it one of Vancouver's most energy-efficient buildings.

**Name:** Revenue Canada Office Building, Surrey, B.C.

**Description:** In 1997, Public Works Canada embarked upon a design/build competition for a major new office for Revenue Canada. The challenge was to develop an "advanced office building" within traditional parameters. The resulting building surpasses normative expectations of budget-driven architecture by providing an award-winning design solution at an affordable price. The building is also an important example of incorporating green design principles while staying within a competitive office building capital budget. It operates at well below (60 - 70%) targetted ASHRAE 90.1 compliance.

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## Company Profile

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**Name:** One Wall Centre, Vancouver, B.C.

**Description:** The second phase of the Wall Centre Hotel complex, the City's first "green" tower, and the tallest building in Vancouver. The 48 storey tower is a combination of hotel space (25 floors, 347 rooms) and private residential (17 floors, 74 luxury suites). Total building area: 42,955 sq. m. (462,000 sq.ft.)

The four-sided structural silicone curtainwall clad tower surpasses ASHRAE 90.1 energy requirements through a number of environmentally friendly design features.

Heritage inventory density transfers were instrumental in making this development possible. 21,322 square meters (74,100 square feet) were acquired from the Stanley Theatre, 440 Cambie Street, and the former Vancouver Central Library.

**Name:** Nicola Valley Institute of Technology, B.C.

**Description:** One of Canada's first post-secondary facilities shared by a native and non-native institute, designed to reflect the cultural characteristics of the aboriginal students, and provide state of the art learning spaces required by University College of the Cariboo.

The commitment to the "new technology" of environmental sustainability is in clear alignment with the historical aboriginal structures of the area. The building emerges from the sloping site, and evolves into a three storey building. The "inner strip" of the semicircular rooftop is planted, adding to the sense of the building growing out of the landscape and also supporting the intention of minimal disruption of the natural landscape of the undeveloped site.

This building is a combination of wood and concrete with a wood column structural system, visually representing pithouse poles rising up through the interior space. A glazed ventilation stack with operable windows is a central feature of the main part of the building, and a critical element in the green design. Tensioned fabric will be used in the ventilation stack for shading.

This is the first phase of a much larger campus plan (43 acre site), and will be followed by campus housing.

**Name:** Materials Testing Facility, Vancouver, B.C.

**Description:** This site accommodates aggregate handling and asphalt manufacturing activities, with a small Materials Testing Laboratory. Busby + Associates Architects view this building as an exciting prototype for demonstrating the economical use of recycled and reused materials in construction.

Other sustainable ("green") building design concepts, such as natural ventilation and solar shading have also been utilized.

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## Company Profile

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**Name:** Burrard Street Entertainment Centre, Vancouver, BC

**Description:** The project envisioned for this site in downtown Vancouver will dramatically revitalize and enliven a very significant location, vacant for many years and currently used as a parking lot.

The multi-level building will be lively and colourful with a "transparent" envelope revealing the interior activity, signage and atrium space. It will extend the life of the neighbourhood into the evening hours, providing activity and animation as well as a sense of security to an area that is now abandoned after dark. The visual and functional nature of the building design will invite pedestrian traffic and extend the perimeter of Vancouver's downtown activities in terms of geography and time of day.

**Name:** APEGBC Head Offices, Burnaby, B.C.

**Description:** The simple, 2 storey steel structure is oriented to provide maximum visual impact from the #401, to preserve a large portion of the site for landscaping with natural species, and to provide a view corridor from the Highway to the North and the mountains. Services and solid structure are located to the West, to mask an adjacent building and to maximize the transparency from the Southeast. The ground floor is subdividable "flex space" designed for tenants, with direct access through shop fronts. A glass elevator and stair leads to the upper floor facilities of the APEGBC, where offices are also arranged to the West to maximize view opportunities for all employees.

The project was delivered under budget at a very low cost per square foot, which belies the quality and feel of the building and spaces.

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## Company Profile

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### Bush, Bohlman & Partners Ltd.

**Address:** 1250 - 1500 West Georgia Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 688-9861

**Postal/Zip:** V6G2Z6

**Fax:** (604) 688-7039

**E-Mail** info@bbp.dwg.com

**Web Site:** www.dwg.com/bbp/

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#### Key Contact(s):

**Name:** Mr. Craig Lamb, P. Eng.

**Pos Title:** Partner

**E-Mail:** clamb@bbp.dwg.com

**Tel:** (604) 688-9861

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**Branches:** Vancouver

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#### Business Description:

Bush, Bohlman & Partners is a firm of consulting structural engineers experienced in the design, documentation, and construction supervision of major projects throughout Western Canada. The Vancouver office was established in 1970 and has continuously provided services for commercial and institutional projects, including shopping centres, office buildings, apartment buildings, health care facilities, educational facilities, airports, and civic buildings.

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#### Active Geographic Market(s):

Western Canada

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#### Recent Project(s):

**Name:** Liu Centre for International Studies, UBC

**Description:** Small office block and meeting facility constructed using high flyash content concrete where up to 50% of the cement in the concrete mix was replaced by flyash. Recycled glue-laminated beams were also used in roof construction.



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## Company Profile

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**Name:** 2211 West Fourth Avenue, Vancouver, B.C.

**Description:** This \$15 million mixed-use project is located in the heart of Vancouver's vibrant West Fourth Kitsilano community. The 13,000m<sup>2</sup> concrete structure includes 78 condominium units above neighbourhood retail and office space and provides 274 underground parking stalls.

The project incorporates environmental features such as geothermal hot water and a combination of geothermal, energy-efficient gas fireplaces, and a filtered water system.

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## Company Profile

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### Cornelia Hahn Oberlander

**Address:** 1371 Acadia Road

**City,Prov:** Vancouver, BC

**Phone:** (604) 224-3967

**Postal/Zip:** V6T1P6

**Fax:** (604) 224-7347

**E-Mail:** oberland@unixg.ubc.ca

**Web Site:**

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#### Key Contact(s):

**Name:** Mrs. Cornelia Hahn Oberlander

**Pos Title:** Principal

**E-Mail:** oberland@unixg.ubc.ca

**Tel:** (604) 224-3967

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**Branches:** Vancouver

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#### Business Description:

Over the past 40 years Cornelia Oberlander has been involved as Landscape Architect in a wide range of projects with noted internationally acclaimed architects and public agencies in Canada and the United States. All projects are based on design concepts and studies of social, cultural and physical features of a given site. To each project she attempts to bring the mastery of the art and the science of the profession, as well as the ability to work creatively as a member of the team with architects and engineers in relating the finite work of the building to the out of doors.

As stated by the Governor General in presenting the Order of Canada: Cornelia Hahn Oberlander is "Canada's premier landscape architect, she is known for integrating her designs in the overall architectural project with the natural environment, yet always adding a unique new vision and dimension. Her expert technical knowledge is coupled with her concern for expressing cultural, social and environmental concepts in her work and is reflected in her many projects for the young, the old, and for the public at large."

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#### Active Geographic Market(s):

Canada

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#### Recent Project(s):

**Name:** Restoring Landscapes with Native Plants

**Description:** Cornelia Hahn Oberlander had done many projects by restoring landscapes with native plant materials beginning in 1976 with the Museum of Anthropology at the University of British Columbia, Arthur Erickson Architects. In 1991, Matsuzaki/Wright Architects involved her as a Landscape Architect to design the setting for the Northwest Territories



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## Company Profile

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Legislative Assembly Building in Yellowknife with only native plants and grasses.

**Name:** Discovery Parks Incorporated, Burnaby, B.C.

**Description:** As early as 1982, Cornelia Oberlander worked with architect Russel Vandiver to design Discovery Parks Incorporated in Burnaby, B.C.. The concept of Discovery Parks was to create a park-like setting with native plant material and a water retention pond.

**Name:** C. K. Choi Building, Vancouver, B.C.

**Description:** As member of the design team, Oberlander worked with Matsuzaki/Wright Architects to develop an environmentally responsible building and landscape for the C. K. Choi Institute of Asian Research, UBC. The landscape features a sub-surface biological marsh for purification of collected rainwater and "tea" for the composting toilets. The cleaned water is gradually released into a subsurface irrigation system

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## Company Profile

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### CWMM Consulting Engineers Ltd.

**Address:** 2nd Floor, 1412 West 7th Avenue

**City,Prov:** Vancouver, BC

**Phone:** (604) 731-6584

**Postal/Zip:** V6H1C1

**Fax:** (604) 738-5110

**E-Mail** engineer@cwmm.com

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. John Peddle

**Pos Title:** Principal

**E-Mail:** engineer@cwmm.com

**Tel:** (604) 731-6584

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**Branches:** Hong Kong, Kelowna, Vancouver

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#### Business Description:

CWMM Consulting Engineers Ltd. (formerly Choukalos Woodburn McKenzie Maranda Ltd.) is one of British Columbia's most prominent consulting engineering companies specializing in the structural design of buildings, bridges, marine facilities, and a wide range of other structural and civil works projects. The firm has developed extensive experience in structural design, preparation of contract documents, supervision of construction, and project management for a wide variety of projects and a wide base of clients. Clients have been both private and governmental. Our repeat business is extensive, in fact many of our clients have grown with us.

CWMM's philosophy of design emphasizes the uniqueness of each project situation. Arriving at an appropriate design solution is dependent on a thorough understanding of project constraints and objectives. CWMM has, over the years, built a team of motivated engineers and technologists with a strong technical design background and communication skills. We place a strong emphasis on client-consultant communication, which invariably saves time and money. All of our projects are carried out under the direct responsibility of one of the five Principals of the company. From our overseas experience CWMM has developed skills in the international market, including for example, the in-house preparation of computer generated contract drawings in Chinese.

From its original focus on structural engineering, CWMM has expanded the range of services it offers into related disciplines where the firm's philosophy and existing strengths will be particularly relevant to clients' needs. Ranging from initial studies, feasibility assessment and preliminary design through detailed design and working drawings, and field services, CWMM offers a comprehensive engineering service in a range of areas to ensure an economical and successful project and operates a stringent in-house peer review and checking system which exceeds the A.P.E.G.B.C. mandate. We have recently completed the pre-assessment stage of the ISO 9001 Quality Assurance Program and anticipate IOS 9001 certification in the spring of 2000.

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## Company Profile

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### Active Geographic Market(s):

Canada  
Hong Kong  
Taiwan  
China  
Malaysia  
Philippines

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### Recent Project(s):

**Name:** Crestwood Corporate Centre, Richmond, B.C.

**Description:** CWMM Consulting Engineers have been the structural engineers for not only the Crestwood Building No. 8 but also the Crestwood Buildings Nos. 2, 5, 6, and 7 at the Crestwood Corporate Centre for the same client, Bentall Properties and Bunting Coady Architects.

The building No. 8 structure represents the accumulated experience gained on previous buildings, resulting in a structural design solution that is cost effective and well coordinated with both the architectural and the building systems (mechanical and electrical). The project Engineer for all the Crestwood Corporate Buildings listed above was Mr. John Peddle, P.Eng, one of the five Principals of the company.

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## Company Profile

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### Durante Kreuk Ltd.

**Address:** 100 - 1152 Mainland Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 684-4611

**Postal/Zip:** V6B4X2

**Fax:** (604) 684-0577

**E-Mail** jane@dkl.bc.ca

**Web Site:** www.dkl.bc.ca

---

#### Key Contact(s):

**Name:** Mrs. Jane Durante

**Name:** Mr. Chris Sterry

**Pos Title:** Partner

**Pos Title:** Project Architect

**E-Mail:** jane@dkl.bc.ca

**E-Mail:** chris@dkl.bc.ca

**Tel:** (604) 684-4611

**Tel:** (604) 684-4611

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**Branches:** Vancouver

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#### Business Description:

Durante Kreuk Ltd. is a Vancouver-based firm with a broad range of experience in landscape architecture, urban open space design, site reconnaissance, site planning and environmental design. The firm provides a full range of services from design through working drawings and contract management.

We believe a team approach is the most successful and desirable way to solve design problems. By working closely with architects, engineers, planners and developers, realistic and unique designs are created and effectively implemented. This process has been demonstrated in the variety of projects, diverse in scale and complexity, in which Durante Kreuk Ltd. has been involved.

Durante Kreuk Ltd. is committed to excellence and attention to detail.

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#### Active Geographic Market(s):

Canada

United States

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#### Recent Project(s):

**Name:** Other Projects

**Description:** Centre for Continuing Studies, UBC, Vancouver, B.C.  
Port Royal, a new community, New Westminster, B.C.  
Royal Oakland Park, Burnaby, B.C.  
Arbutus Greenway, Vancouver, B.C.

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## Company Profile

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**Name:** Fraser Valley Site, B.C.

**Description:** This project uses bio-filtration swales and/or retention ponds to reduce and purify the storm water before exiting the site via existing streams. Structural soil mixes are also utilized for vehicular sub-surfaces that allow for the transmigration of water and tree roots into sub-surface areas.

**Name:** Burnaby East High School, Burnaby, B.C.

**Description:** This project uses bio-filtration swales and/or retention ponds to reduce and purify the storm water before exiting the site via existing streams. Structural soil mixes are also utilized for vehicular sub-surfaces that allow for the transmigration of water and tree roots into sub-surface areas.

**Name:** BC Gas Development

**Description:** This project uses bio-filtration swales and/or retention ponds to reduce and purify the storm water before exiting the site via existing streams. Structural soil mixes are also utilized for vehicular sub-surfaces that allow for the transmigration of water and tree roots into sub-surface areas.

**Name:** 2211 West Fourth Project, Vancouver, B.C.

**Description:** Durante Kreuk Ltd. responded to the program for the exterior spaces by creating delightful small scale courtyards overlooking an active shopping street. The courtyards have dappled shade and the gentle sound of a commemorative fountain. These spaces work well for people watching, as well as meeting friends and sipping coffee.

Roof terraces are treated with hardy plants that provide privacy while framing views to the mountain and the sea.

Locations for and types of plants were chosen for their need for minimum water and the ability to flourish exposed to the sun and the rain.

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## Company Profile

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### EBA Engineering Consultants Ltd

**Address:** 550 - 1100 Melville Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 685-0275

**Postal/Zip:** V6E4A6

**Fax:** (604) 684-6241

**E-Mail** vancouver@eba.ca

**Web Site:** www.eba.ca

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#### Key Contact(s):

**Name:** Mr. Tim Bekhuys

**Pos Title:** Manager of Environmental Services

**E-Mail:** bekhuys@eba.ca

**Tel:** (604) 685-0275

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**Branches:** Anchorage, Calgary, Courtenay, Edmonton, Kamloops, Kelowna, Lethbridge, Moscow, Nanaimo, Nelson, Revelstoke, Ucluelet, Vancouver, Whitehorse, Yellowknife

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#### Business Description:

EBA Engineering Consultants Ltd. and its wholly owned subsidiaries make up the EBA Group of Companies. Founded by Dr. Elmer Brooker in 1966, the firm has grown to become a multi-disciplinary environmental, civil, geotechnical, and materials engineering organization with a staff of approximately 350.

Our markets include both private and public sector clientele that require specialized services in the fields of environmental, arctic, geotechnical, forestry and pavements. We provide project management services on projects where the engineering/environmental component is predominantly within our fields of specialization. Typical projects where the full complement of services are offered include resort and community development, airport construction and operations, site remediation, and environmental management for forestry, roads and highways, tunnels, mines, offshore islands, dams and landfills.

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#### Active Geographic Market(s):

Canada

United States

Australia & New Zealand

Commonwealth of Independent States

Finland

Sweden

Norway

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## Company Profile

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### Recent Project(s):

**Name:** Sun Rivers Golf Course and Residential Community

**Description:** EBA completed an environmental and geotechnical assessment and permitting through the Canadian Environmental Assessment Act (CEAA) review process for this 500 acre golf course and residential/commercial development overlooking Kamloops, B.C. The environmental component of the project included development of guidelines for sensitive development with respect to rare and endangered wildlife, spill and emergency planning, native landscaping (xeriscaping) and irrigation and geotechnical assessments for developing on sensitive soils. The project received full environmental approvals from the federal government.

**Name:** Straiton Lands Village Centre, Abbotsford, B.C.

**Description:** The Straiton lands project is a 700 acre new town centre near Abbotsford, B.C. This village is situated within a plateau surrounded by deeply incised creek valleys. EBA has been involved in this project's environmental planning to create a new town center that is sustainable both in meeting the communities needs and in terms of maintaining ecological viability of the creeks and sensitive areas.

**Name:** Glenmore Highlands Village Centre, Kelowna, B.C.

**Description:** EBA completed environmental, geotechnical and hydrogeological assessment of this 1000 acre new village centre located on uplands overlooking Kelowna, B.C. This project included evaluation of the area wetlands and sensitive ecological features and working closely with the development team to create a residential community in harmony with the rugged, natural backdrop. This included insuring wetlands were not effected by the development and developing a greenspace network for wildlife movement and human recreation.

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## Company Profile

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### ECO-TEK Wastewater Treatments Inc.

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**City,Prov:** Langley, BC

**Phone:** (604) 882-2999

**Postal/Zip:** V9M3W3

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**E-Mail** ecotek@windsong.bc.ca

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. Kim Rink

**Pos Title:** President

**E-Mail:** ecotek@windsong.bc.ca

**Tel:** (604) 882-2999

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**Branches:** Langley

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#### Business Description:

ECO-TEK works in collaboration with Ecological Engineering of Massachusetts and local Canadian engineering firms to provide a full range of wastewater treatment and reuse services. ECO-TEK is unique in that it designs its systems to use wastewater as a resource, as wastewater is primarily water, nutrients, chemicals, and heat energy.

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#### Active Geographic Market(s):

Canada

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#### Recent Project(s):

**Name:** Sewage Treatment Plant, Beaverbank Villa, NS

**Description:** Sewage treatment for extended care facility and associated housing.

**Name:** Sewage Treatment Pilot Facility, Harwich, MA

**Description:** Sewage treatment for a community of 10,000 people.

**Name:** Sewage Treatment Plant, La Paz, Mexico

**Description:** Sewage treatment for housing development. Effluent will be recycled for livestock and irrigation.

**Name:** Beausoleil Solar Aquatics Treatment Plant

**Description:** Sewage Treatment Plant in Errington, B.C.

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## Company Profile

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### Ekistics Architecture Inc.

**Address:** 1107 West 8th Avenue

**City,Prov:** Vancouver, BC

**Phone:** (604) 739-7526

**Postal/Zip:** V6H1C5

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**Web Site:** www.ekistics.ca

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#### Key Contact(s):

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**Pos Title:** Partner

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**Branches:** Vancouver

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#### Business Description:

EKISTICS Architecture Inc. is multi-disciplinary consulting firm specializing in architecture and urban design. The firm contends that architecture should be an inherent component of the surrounding physical and social context. EKISTICS' designers strive to create imaginative architectural solutions that resolve detailed technical issues while demonstrating a broad design sensibility of context. Architecture should be more than the creation of an isolated icon. The most successful architectural designs foster an enjoyable experience of the built environment and provide meaning in our villages, towns and neighbourhoods.

Within the framework of market and financial analysis, EKISTICS strives to develop responses to complex issues that are creative, contextual and realistic. The firm prides itself in its close working relationships with the clients at every level of the design process.

The professional team at EKISTICS is proud of a wide variety of award-winning architectural projects from office and hotel towers to multi-unit residential and resort complexes. Specifically, the firm is currently undertaking architectural design work in nine municipalities in British Columbia and a variety of Pacific Rim countries.

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#### Active Geographic Market(s):

Canada

China

Japan

United States

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## Company Profile

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### Recent Project(s):

**Name:** The Presidential Golf Club Clubhouse, Japan

**Description:** Situated at the base of Mount Fuji near Tokyo, the clubhouse for the Presidential Golf Club commands a panoramic view over a lush country valley. EKISTICS was engaged to develop an architectural statement to fit the context of this spectacular natural setting. The architecture of the facility engages its surroundings; a strong horizontal form and mass grounds the building into the mountainside site. The free-flowing plan is organized around a strong entry axis leading from the arrival area through the heavy timber structure to a planted terrace. Views from the clubhouse are directed towards this courtyard staging area with the effect that golfers are drawn out into the landscape. The clubhouse program includes complete golf services as well as dining, meeting and lounge facilities.

**Name:** Somerville Corner, Kelowna, B.C.

**Description:** Somerville Corner is a comprehensively planned pedestrian-oriented village comprised of modest, attractive and affordable detached homes. In a municipality typified by walled developments, Somerville Corner demonstrates how a compact neighbourhood can possess an inviting public realm. Homes along the perimeter face outward to embrace neighbouring land uses. All internal residential units directly front narrowed streets with sidewalks, trees and decorative street lamps. Lane access to rear garages means that porches, front doors and windows animate the streetscape. Routes into Somerville Corner focus on central civic greens which provide shared open space within the neighbourhood.

The pattern of subdivision, the provision of neighbourhood parkland, the character of the streets, the placement of buildings within each home-site, as well as the architectural form of the homes have all been sensitively considered to create Kelowna's first compact, small lot neighbourhood.

**Name:** Manteo Beach Resort, Kelowna, B.C.

**Description:** With a mandate to design Kelowna's first five-star resort community, EKISTICS developed the architecture for an intimate beach club on Lake Okanagan. The design goal was to address the practical need for unit efficiency with a form and character appropriate for a premiere destination resort. Individual unit plans are based on a split-level design; vaulted living spaces maximize views through the units towards the lake. The exterior treatment--inspired by a Tuscan vernacular--includes expressive roof lines, complex facade articulation and a vibrant colour palette to evoke a festive resort atmosphere.

The architecture of the Manteo clubhouse reflects the building's role as the social and recreational centrepiece of this exciting lakefront resort. While a continuity of design detail unifies the overall project, the clubhouse expresses itself as a kind of beacon to draw and focus activity. In plan, the clubhouse fans outward to address the water's edge and interior facilities reach out onto the pool deck. Overall, the architecture strives to celebrate the beautiful Okanagan location by uniting interior and exterior activities through design and detailing.

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## Company Profile

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**Name:** 681 Columbia Street, New Westminster, B.C.

**Description:** The Columbia Street project is a pioneering effort to develop the first mixed-use commercial and residential tower on the "Royal City's" primary avenue. EKISTICS was commissioned to undertake the rezoning and architectural design of this landmark building which is intended to be a facilitator of the revitalization of this historic district.

The 12-storey tower integrates affordable residential uses with three levels of commercial and retail space. EKISTICS worked cooperatively with the City of New Westminster to develop a customized zone to address density, site coverage and setback issues within a heritage context. The building maintains the strong historical theme of Columbia Street with a streetwall established by a dominant brick facade. The tower element is setback from the street. The project maintains the pedestrian character of the street while providing the critical mass of residential floorspace necessary to make the project economically viable and marketable.

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## Company Profile

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### **Ekistics Town Planning Inc.**

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#### **Key Contact(s):**

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**Branches:** Vancouver

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#### **Business Description:**

EKISTICS Town Planning Inc. is multi-disciplinary consulting firm specializing in land development planning and design. The EKISTICS group of companies provides professional expertise in the fields of town planning, architecture, urban design, resort planning and landscape architecture to both private- and public-sector clients.

With its comprehensive approach to results-oriented planning and innovative design, EKISTICS has developed a respected reputation for creative, contextual and realistic responses to the complex issues of towns. It has been said that planning is more discovery than invention. The firm's work is always grounded within the framework of sound financial analyses yet it is exploratory and strives to find innovative solutions that are appropriate to given situation. An extensive computer-assisted design (CAD) network gives EKISTICS the capability to apply emerging technologies to its planning work both locally and abroad.

EKISTICS' reputation has been established primarily in western Canada where numerous award-winning projects have been successfully constructed. The team's development planning expertise has also been demonstrated globally. The company's proven approach has brought life to design vision in land development, resort planning and architectural projects in a number of countries.

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#### **Active Geographic Market(s):**

Canada

Costa Rica

Malaysia

New Zealand



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## Company Profile

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Puerto Rico  
United States  
Japan  
Cuba  
China  
Tanzania

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### Recent Project(s):

**Name:** Terwillegar Towne Centre, Edmonton, Alta.

**Description:** EKISTICS was commissioned to undertake the conceptual design and planning of the first phase of a 500 hectare (1235 acre) new town near Edmonton. With a goal to achieve a more complete range of land uses, the first phase encompasses nearly 2,000 housing units that are focused on localized public amenities and a large mixed-use "town centre" precinct. A interconnected grid pattern of streets unites the various neighbourhood and community elements; axial streets provide a formal relationship between significant buildings. The clustering of land uses and the thoughtful placement of the important civic elements creates an urban form with a legible character.

In terms of overall planning and urban design, this mixed-use precinct is located at the community's geographic centre where it is within convenient walking distance of most homes. This "downtown" for the estimated 20,000 residents of the traditionally planned community includes over 125,000 square feet of commercial floor space as well as a church, library, town hall, and two schools. The area is sure to become a people-friendly meeting place and a vibrant focus of activity.

An Area Structure Plan, formulated by EKISTICS and adopted by the City of Edmonton, sets the planning framework for the neighbourhood. Tree-lined boulevards, pedestrian-friendly streets with rear lanes, homes set close to the sidewalk with front porches, and a fine-grained mixture of land uses are just some of the design features that will make Terwillegar Towne a liveable community.

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## Company Profile

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**Name:** Sun Rivers Community, Kelowna, B.C.

**Description:** The site for the Sun Rivers community is a 186 hectare (460 acre) gently sloping hillside overlooking the South Thompson River in Kamloops, British Columbia. The ultimate goal for development at Sun Rivers was for the community plan to balance social, environmental and economic imperatives. A more complete community--one that includes places to live, places to work, places to shop and places to recreate--was to be achieved. Planning and design had to respect the natural character of the semi-arid setting.

To meet the challenge, the contemporary elements of sustainable community design were sensitively applied. The concept integrates two thousand residential units, school and park facilities and a vibrant mixed-use village centre within a spectacular championship golf course. The golf clubhouse and social centre occupy a landmark setting and create the focal point for community.

The community design concept for Sun Rivers incorporates elements that reconcile economic needs with social and environmental imperatives. Through physical design and innovative urban technologies, the community sets new standards for development in British Columbia. Few projects for new planned communities in Canada achieve the same degree of sustainability.

**Name:** Northeast Coquitlam Land Use Study, Coquitlam, B.C

**Description:** On behalf of the local government of this suburban Vancouver municipality, EKISTICS conducted a comprehensive land use study to articulate a plan for a sustainable village that would define new standards for community development in British Columbia. With a study site of more than 5,400 hectares, the objective was to prepare a development concept that would balance social, economic, environmental and fiscal parameters.

An innovative planning process was employed that combined interactive design exploration, community participation and objective evaluation. To work towards the goal of enhanced sustainability, a GIS-based computer model was used to measure a number of agreed-upon indicators. Quantitative "scoring" of land use alternatives demonstrated to the study participants how well design notions addressed the sustainability objectives. In the end, a plan for a compact, mixed-use, transit-oriented community of 24,000 people was formulated. The product of the study is especially unique because of its comprehensive application of the principles of sustainability and liveability within a hillside context.

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## Company Profile

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**Name:** Kettle Valley, Kelowna, B.C.

**Description:** On a spectacular mountainside plateau overlooking Okanagan Lake, EKISTICS has developed a traditional town concept for a mixed-use complete community. The plan integrates a diverse mix of over one thousand homes into a village setting complete with a pedestrian-oriented "Main Street", schools and community facilities, civic parks and an extensive recreational open space network.

The Kettle Valley community focuses on a vibrant mixed-use village centre that is the social and economic heart of daily life. A clustering of land use activity and a modified grid pattern of streets means that seventy percent of all residents are within a ten-minute walking distance of key community amenities. In terms of design details, rear lanes that provide vehicular access to lots and sensitively designed homes with front porches near the sidewalk create a comfortable village environment. Comprehensive zoning and customized streetscape standards as well as detailed landscaping and architectural design codes were formulated to shape the development of a close-knit neighbourhood that possesses the form and character of a traditional town.

**Name:** Auguston, Abbotsford, B.C.

**Description:** Auguston is an exciting "new town" in the City of Abbotsford, one hour's drive east of Vancouver. Based on traditional town planning principles, this complete community has been designed to accommodate over 6,000 people in a variety of dwelling unit types supported by an abundance of parks, a commercial village centre, a church site, a residents' recreation centre and both elementary and secondary schools.

The community is set within a wooded, natural setting atop Sumas Mountain. With watercourses, diverse topography and panoramic views, the development plan integrates comprehensive urban uses with unique physical characteristics. The plan provides for places to live, work, shop, learn and recreate all within one sensitively designed community.

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## Company Profile

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**f.n. fenger & associates Ltd.**

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### Key Contact(s):

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**Pos Title:** Principal

**E-Mail:** fnfa@fnfa.com

**Tel:** (250) 381-6121

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**Branches:** Victoria

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### Business Description:

Our team of engineers and designers has expertise in all aspects of electrical, lighting and communications distribution engineering, including: lighting, power distribution systems, communications distribution, energy efficiency and earthquake restraint.

Our firm brings together the dedication and commitment of many long term staff members, the track record of one of the larger electrical/lighting consulting firms in British Columbia, and the electrical and lighting experience of its Principals. The firm has particular expertise in lighting design, and has been responsible for museum projects throughout the world. This expertise is applied to all our projects, providing lighting which is energy-efficient, cost-effective and blends with the architecture of the building.

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### Active Geographic Market(s):

Canada

Hong Kong

Mexico

United States

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### Recent Project(s):

**Name:** Pandora Wing, Richard Blanshard Building, Victoria

**Description:** A comprehensive study of the energy performance of a 6 storey, 1956-vintage office building was conducted to upgrade the building to Commercial Building Incentive Program (CBIP) guidelines. Included in the study was a review of high performance

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## Company Profile

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glazing systems and computer modeling of exterior shading to optimize the benefits of daylighting. An in-depth study of lighting options was conducted to select the optimum system of IES-compliant solutions.

**Name:** Lampson Street School, Esquimalt, B.C.

**Description:** This project included upgrading an existing 1900's era school building to contemporary energy performance standards while still retaining the heritage character of the building. The project was used as a prototype for several lighting upgrade projects undertaken by the school district.

**Name:** Gulf Islands Senior Secondary School, Ganges, B.C.

**Description:** This award-winning project integrated energy-efficient lighting with architectural features to achieve cost-effective lighting complying to IES standards for VDT areas. The project was awarded the B.C. Hydro PowerSmart Award of Excellence for Educational Institutions in 1994.

**Name:** Engineering Lab Wing, University of Victoria

**Description:** This project included extensive modeling of building orientation, light self configuration and lighting systems to optimize daylighting. The project was awarded the B.C. Hydro PowerSmart Award of Excellence for Post-secondary Institutions in 1995. The project also included the latest in data communications systems and power filtering for RF interference. The structured wiring system included 1400 fibre optic connections using one million feet of custom designed fibre, then the largest fibre optics installation in North America. Flexibility was built into the power and communications systems using a system of custom-designed tray and raceways integrated with the perimeter lighting.

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## Company Profile

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### Green Technologies Inc.

**Address:** 42-3500 Cunningham Drive

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**Phone:** (604) 727-0728

**Postal/Zip:** V6X3T3

**Fax:** (604) 303-9965

**E-Mail** mario@bc.sympatico.ca

**Web Site:** www.greentechno.com

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#### Key Contact(s):

**Name:** Lalith Perera

**Name:** Mr. Mario Seneviratne, P.Eng.

**Pos Title:**

**Pos Title:**

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**Tel:** (604) 727-0728

**Tel:** (604) 727-0728

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**Branches:** Dubai-United Arab Emirates, Orpington Kent-United Kingdom, Vancouver

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#### Business Description:

Green Technologies is a company specializing in the design and implementation of mechanical and electrical (M & E) systems pertaining to the building industry. The main focus of the company is to provide consultancy services in state of the art M & E systems and thus has been successful in securing contracts in areas requiring such expertise.

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#### Active Geographic Market(s):

Canada

Middle East

Southeast Asia

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#### Recent Project(s):

**Name:** USGBC-Pilot Project

**Description:** United States Green Building Council Pilot Project (USGBC)

The Kandalama Hotel in Sri Lanka. Green Technologies is currently working with the Hotel operator in having the hotel accredited as a Green Building. This entails a detailed review of the construction documentation, recommendation of retrofit work and the representation of the hotel operator with the USGBC. This site work is due for completion in the winter of 1999, to be followed with the accreditation process with the USGBC expected to be run through the spring of 2000. Green Technologies has been an active participant of the USGBC Pilot Program and hopes that this project will



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## Company Profile

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demonstrate the key issues in the development of Green Buildings.

**Name:** Dubai International Airport

**Description:** The key personnel in the company have extensive experience in the Gulf States and thus have been successful in securing the contract for the project management of the Dubai International Airport Concourse M&E contract. The project was designed by the San Francisco based International Bechtel Company Ltd. and has an installed cooling capacity of approximately 6000 tons. The concourse has 27 aircraft boarding gates, duty free shopping mall, 100 bedroom hotel, and conference facilities and is certainly a state of the art airport concourse of the millennium. Green Technologies is employed by the M&E contractor for the project - Thermo LLC - and is currently managing the M&E contract, which has a value of 60 million Cad \$ and is due for completion in the spring of 2000.

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## Company Profile

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### Hotson Bakker Architects

**Address:** 406 - 611 Alexander Street

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**Phone:** (604) 255-1169

**Postal/Zip:** V6A1E1

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#### Key Contact(s):

**Name:** Mr. Joost Bakker

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**Pos Title:** Principal

**Pos Title:** Principal

**E-Mail:** hba@axionet.com

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**Tel:** (604) 255-1169

**Tel:** (604) 255-1169

**Name:** Mr. Jean-Pierre Mahe

**Pos Title:** Project Architect

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**Tel:** (604) 255-1169

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**Branches:** Toronto, Vancouver

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#### Business Description:

Hotson Bakker Architects maintains practices in both Vancouver and Toronto encompassing architecture, planning and urban design.

Successful mixed-use waterfronts, public markets, housing, educational buildings, recreational facilities and major urban plans have been completed in many communities across Canada.

Informed by environmental concerns, technical achievement and effective cost control, we focus on outstanding design for people.

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#### Active Geographic Market(s):

Australia & New Zealand

United States

Canada

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#### Recent Project(s):

**Name:** Richmond City Hall, Richmond, B. C.

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## Company Profile

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**Description:** The new 120,000 square foot Richmond City Hall is comprised of four major building components creating an ensemble of public spaces. The building elements allow the scheme to respond to both the specific needs of the previous programme components and the conditions of the site context. While the formal front door addresses No. 3 Road, universal access from all directions is provided for pedestrians, cyclists and cars.

The complex has been designed to ensure that the public will recognise City Hall as an inviting and accessible public resource. The building also provides an effective office environment to enhance the ability of its staff to carry out city business, serving the public as "customers".

The building incorporates a passive solar strategy to address south and west solar gain. A 4-pipe fan coil system is interfaced with opening windows to allow substantial reduction in energy costs. A high floor-to-ceiling ratio allows maximum use of daylight within office space.

**Name:** Northeast Burnaby Secondary School, Burnaby, B.C.

**Description:** This 1,500 student, \$20 million school adds a more intense land use to an existing highways right-of-way. Hotson Bakker Architects were instrumental in establishing The Learning Consortium, the successful proponet in a public/private partnership initiative for this development. The consortium of The Dominion Company, VanCity Enterprises, Cornerstone Planning Group, Franklin Hill and Associates, IBM Canada Ltd. and B.C. Tel Discovery Learning provided a fully integrated design/build capability to the school delivery.

Key elements to the design and development strategy of this facility include:

- Partnerships with post-secondary educational institutions for use of joint facilities to allow better utilisation of under-used existing spaces such as labs, theatres and sports facilities.
- Environmental strategies to enhance and protect the included major covenants on treed areas, storm water management and detention systems as well as school stewardship and educational programmes.
- Extended day utilisation of the facility will allow the school to increase in size up to 1,875 students. A partnership with Burnaby Parks & Recreation will allow night time and weekend use of all recreational facilities.
- Large spanned steel structure and concrete tilt-up construction will allow for long term flexibility and durability of the facility.
- Life cycle and environmental cost benefits include the incorporation of solar shading strategies and a horizontal field geothermal heating and cooling system.
- Integrated information technology sharing with post-secondary educational institutes and provision of a telecommunications hub for the surrounding community.

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## Company Profile

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**Name:** CRD Engineering Building, Victoria, B. C.

**Description:** This 4,200 m<sup>2</sup>, four storey mixed-use building includes street related retail with three storeys of office above. The building retains the heritage facade of the historic Police Building and animates the adjacent Centennial Square with cafes and an environmental demonstration garden. Environmental strategies include:

- operable windows, natural ventilation, use of thermal mass and daylighting. Ground source heat pumps and free geothermal energy provide approximately 70% of the building's heating.
- "retrofit ready" design for higher energy standards and renewable energy technologies as they become more technically and economically viable.
- sun screening for daylighting and solar control in adjacent spaces.
- rain water collection to irrigate the adjacent grass area. Piping allows a fully integrated water management strategy and connection to a future solar aquatic greenhouse.

**Name:** Centre for Continuing Studies, UBC

**Description:** The first phase development of the Centre for Continuing Studies provides instructional space for English language instruction. The \$6.4 million, 3,500 m<sup>2</sup> facility accommodates state-of-the-art language laboratories and advanced audio-visual and teleconferencing instructional technologies specifically designed for adult learners. A two storey heavy timber and glass pavilion provides both entry and congregation space for the facility. From this entry, access is provided to administration and teacher preparation areas and to the 18 classrooms and language labs. Access to all classroom areas is organized around a useable outdoor courtyard area. In line with UBC Environmental Guidelines, all classrooms and labs are designed with both natural lighting and ventilation. The steel structure is brick clad with sloped metal standing seam roofs. Window openings on the south and west faces are screened by a combination of tree planting and solar sunscreens.

**Name:** 2211 West Fourth Avenue, Vancouver, B. C.

**Description:** This \$15 million mixed-used project is located in the heart of Vancouver's vibrant West Fourth Kitsilano community. The 13,000 m<sup>2</sup> concrete structure includes 78 condominium units above neighbourhood retail and office space and provides 274 underground parking stalls.

All of the residential units are provided with outdoor decks offering a variety of views. The project incorporates environmental features such as geothermal heated domestic hot water and a combination of geothermal heating/cooling and energy-efficient gas fireplaces. The project incorporates a garbage recycling programme and a filtered water system.

Hotson Bakker are also responsible for development of the overall tenant design coordination, and have designed the interiors of Duthie Books and Coast Mountain Sports.

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## Company Profile

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### Jones Kwong Kishi Consulting Engineers

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#### Key Contact(s):

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**Branches:** North Vancouver

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#### Business Description:

Structural engineering of innovative and cost effective buildings for design/build, commercial and institutional clients. We have special expertise in concrete structure and seismic design with recognized experts in our company.

The firm offers complete structural engineering services from concept to construction completion including:

- Data collection and analysis of alternate structural systems.
- Preliminary and detailed structural engineering design in all materials.
- Contract documents, drawings, specifications and schedules.
- Site review and contract administration.
- Seismic analysis and upgrading of existing structures.
- Feasibility studies, condition surveys and pre-purchase inspections.

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#### Active Geographic Market(s):

Canada

Hong Kong

United States

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#### Recent Project(s):

**Name:** Revenue Canada Office, Surrey, B.C.

**Description:** 5 storey, 11,152 m2 reinforced concrete office facility, 50% of structural material cost is recycled materials.

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## Company Profile

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**Name:** Discovery Park, Burnaby, B.C.

**Description:** 47,000sq.ft/ reinforced concrete or steel office facility.



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## Company Profile

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### James Paul Architect

**Address:** 589 Lucerne Place

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**Phone:** (604) 986-2238

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#### Key Contact(s):

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**Name:** Mrs. Nancy Paul

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**Pos Title:** Landscape Architect

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**Branches:** North Vancouver

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#### Business Description:

James Paul Architect provides architectural, interior design, landscape architecture and urban design services. Established in 1996, with a focus on office, retail and multifamily units.

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#### Active Geographic Market(s):

British Columbia

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#### Recent Project(s):

**Name:** Crestwood Corporate Center, Richmond, B.C.

**Description:** Building No. 2

This energy efficient, environmentally responsible office building is based upon the Government of Canada C-2000 Program for Advanced Commercial Buildings. Building materials are chosen to reduce potential harmful off-gassing within the building environment. The HVAC systems is an energy efficient zoned fan coil system with maximum fresh air mixing. Indigenous landscaping specimens minimize watering and also include a partially grassed parking area to reduce the amount of hard reflective paving surfaces and encourage groundwater filtration. All bathroom fixtures are low flow to reduce water consumption. A recycling program was utilized on site for waste materials and where possible integration of excess materials into the new building. The building orientation addresses the sun's path; sunshades are utilized on the south facades and low deciduous trees shade the ground floor while preserving views to the landscape. The building envelope exceeds commercial standards for insulation values in part by utilizing thermally broken window frames and high performance glazing.

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## Company Profile

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**Name:** Capital Regional District Design Competition

**Description:** Victoria, B.C. This Design Competition entry is for an environmentally conscious Headquarters Building and comprehensive redesign of a civic square. The proposed 3,750 sq. m. office/commercial building takes advantage of its southern exposure for solar gain, recycles rain and gray water on to roof top gardens, utilizes natural light and ventilation, and specifies building materials which are recycled or have low embodied energy. This proposal also minimizes life-cycle and operating costs while meeting a strict construction budget and design guidelines of the competition.

**Name:** 2 Friars Bridge Road, Ipswich, Suffolk, England

**Description:** This office building provides approximately 2,450 sq. m. of speculative office space planned to be lettable on a floor by floor basis. Maximum efficiency is obtained by the rectangular floor plan which, with its narrow width, provides excellent day lighting and natural ventilation to office areas. Air conditioning was eliminated by designing the building envelope to reduce solar heat gain: deep window reveals in the brick cladding and large overhangs shade strip windows on the top floor. The building heating and ventilating systems are thus limited to efficient and economical hot water radiant heating.

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## Company Profile

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### Richard Kadulski Architect

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#### Key Contact(s):

**Name:** Mr. Richard Kadulski

**Pos Title:** Principal

**E-Mail:** kadulski@direct.ca

**Tel:** (604) 689-1841

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**Branches:** Vancouver

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#### Business Description:

Richard Kadulski Architect specializes in residential architecture, energy conservation, healthy and sustainable housing, building science, solar design and wood frame construction.

Over 25 years of architectural experience in all aspects of residential and commercial projects, with emphasis on climate adapted, sustainable, energy efficient and healthy building design. Past projects include residences and renovations in all parts of Canada, including the B.C. Advanced House Project, a state of the art demonstration of new technologies for energy and resource efficiency and indoor air quality.

Consulting services for energy efficient housing programs, such as the R2000 New Home Program: program technical standards review; and building science consulting.

Technology transfer activities include participation on Canada Mortgage and Housing Corporation's International Training Team (delivery of technical training in export markets, in support of Canadian housing exporters); building industry training seminars, and preparation of industry manuals.

As well, Mr. Kadulski has authored a number of consumer publications and books on solar energy applications, residential ventilation and home heating systems.

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#### Active Geographic Market(s):

Canada

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#### Recent Project(s):

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## Company Profile

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**Name:** Solplan Review

**Description:** An independent journal of energy conservation, building science and construction.

**Name:** B.C. Advanced House

**Description:** A demonstration project showcasing new and innovative construction concepts and materials for energy efficiency, sustainable and healthy concerns.

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## Company Profile

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### Keen Engineering Co. Ltd.

**Address:** 116-930 West 1st Street

**City,Prov:** North Vancouver, BC

**Phone:** (604) 986-5336

**Postal/Zip:** V7P3N4

**Fax:** (604) 980-3747

**E-Mail** info@keen.ca

**Web Site:** http://www.keen.ca

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#### Key Contact(s):

**Name:** Mr. Kevin Hydes

**Name:** Mr. Thomas E. Johnston

**Pos Title:** President

**Pos Title:** CEO

**E-Mail:** kevin.hydes@keen.ca

**E-Mail:** tom.johnson@keen.ca

**Tel:** (604) 986-5336

**Tel:** (604) 986-5336

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**Branches:** Abbotsford, Calgary, Edmonton, Kamloops, Nanaimo, Toronto, Vancouver, Victoria

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#### Business Description:

Keen Engineering provides mechanical engineering for buildings. Consulting mechanical engineers function both as consultants to other disciplines and as prime consultants on projects of primarily mechanical content. The firm is principally involved with mechanical systems for buildings and industrial plants and processes such as heating, ventilation, air conditioning, plumbing, fire protection, building management systems, energy management, sustainable design, and "green" engineering for buildings.

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#### Active Geographic Market(s):

Canada

China

Korea

Kuwait

Australia & New Zealand

United States

Mexico

United Kingdom

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#### Recent Project(s):

**Name:** The Body Shop Head Office, Toronto, Ont.

**Description:** The Body Shop Canada's new headquarters in Don Mills, Ontario serves as a corporate office, central production facility, and warehouse and distribution facility for the

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## Company Profile

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country. The new head office reflects the corporate and cultural values of the Body Shop: a commitment to environmental, social and corporate responsibility. The "Living Machine" component of the Body Shop was developed as a direct result of the Body Shop's values. The Living Machine is a biological waste water treatment system using sunlight, plants, and other organisms to treat domestic waste water. This is one of the first applications of this technology in an urban setting.

The majority of materials used for the Body Shop were recycled or natural-source-content materials. The HVAC system is energy efficient, with insulation wrapping of the entire building, a 22 zone heat pump system controlled by a DDC system, air-to-air heat exchangers, radiant panels and operable windows in the office/work areas.

**Name:** Revenue Canada Office, Surrey, B.C.

**Description:** The Revenue Canada Office Building is a 100,000 ft<sup>2</sup> new office building being designed and constructed using the design/build method. The overall intent for this project is to provide a cost effective, 30 year building, with low maintenance and low energy consumption. Revenue Canada's high estimated churn rate lead Keen to recommend an underfloor air system for the building. The underfloor system provides maximum flexibility and a high level of indoor air quality for the client.

**Name:** Lincoln Square, Bellevue, Washington

**Description:** Keen Engineering, in conjunction with Glumac International of Seattle, were retained to design this \$300 million mixed-use development in Bellevue, Washington. The project brings together the combined strength of both firms to deliver a high quality state of the art office, hotel, retail and residential complex.

**Name:** Library Square, Vancouver, B.C.

**Description:** Library Square, one of Vancouver's most recognizable buildings, is a 390,000 sq. ft. library complex complete with an attached office tower. The library portion of the complex has such features as dynamic thermal storage and a non-conditioned concourse. The immense concrete structure of the library allowed for dynamic thermal storage. The concrete mass absorbs heat during the day, thereby decreasing the peak cooling load. During the summer, the primary ventilation system purges out heat stored in the structure at night. The library's concourse is not directly heated or cooled; instead, the relief air from the bookstack tempers the air in the winter, and openable windows provide ventilation in the summer.

**Name:** Engineering Association Headquarters, Burnaby, B.C.

**Description:** The APEGBC office is a 1,860 m<sup>2</sup> building that showcases energy efficient, state of the art engineering design. Energy efficient systems include the "Smart Envelope", a ground source heat pump heating and ventilation system, extensive use of natural daylighting, and energy efficient lighting. Keen Engineering was honoured with two awards for our outstanding mechanical design for this project.



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## Company Profile

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**Name:** C. K. Choi Building, UBC, Vancouver, B.C.

**Description:** The C.K. Choi Building for the Institute of Asian Research at UBC, is a 32,000 ft<sup>2</sup> post secondary building containing faculty areas, research offices, administrative areas, and meeting areas. The design goal for C.K. Choi was to create a building that was sustainably designed and environmentally sensitive. Keen Engineering met these goals by designing a natural ventilation system, a composting toilet system, a grey water system with a subsurface constructed wetland, and low water consumption fixtures. During the C.K. Choi project, Keen utilized and expanded the principles of green engineering. With the building now occupied, the occupants and owners are happy with the results.

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## Company Profile

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### Ledcor Industries Limited

**Address:** #1000 - 1066 West Hastings Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 681-7500

**Postal/Zip:** V6E3X1

**Fax:** (604) 895-0801

**E-Mail**

**Web Site:** [www.ledcor.com](http://www.ledcor.com)

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#### Key Contact(s):

**Name:** Mr. Jeff V. Thompson

**Pos Title:** Business Development Manager,  
B.C.

**E-Mail:** [jthompso@ledcor.com](mailto:jthompso@ledcor.com)

**Tel:** (604) 681-7500

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**Branches:** Calgary - Alta., Denver - Colorado, Edmonton - Alta., Quebec City - Quebec, Reno - Nevada, Seattle - Washington, Toronto - Ont., Vancouver, Washington - D.C.

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#### Business Description:

Ledcor Industries Limited provides construction services as a general contractor, construction manager and design/build contractor.

In 1947, William Lede founded Ledcor Industries. He drew upon his heritage of a tradition of excellence and pride in a job well done. He dedicated his company to quality workmanship and personalized service.

Ledcor began as an earthmoving contractor that provided services in the Edmonton, Alberta area. One of Ledcor's first projects was to prepare the access road and well-site location for Imperial Oil's famous discovery at Leduc, Alberta, known as Leduc No. 1. From this historical project, the company grew by enlarging its construction operations to accommodate the expansion of the resource industries and the growth of activity in the public sector in Alberta. Ledcor grew from an earthmoving contractor to a civil contractor building highways, dams, and carrying out rock blasting and excavation, utility construction and in the early 1970's, into pipeline construction.

During the early 1980's the company, under the direction of David W. Lede (Chairman and Chief Executive Officer), undertook an extensive strategic review. The decision was made to expand geographically and to diversify into other construction operations. Ledcor expanded throughout Canada and the Western United States opening offices in Vancouver, Toronto, Calgary, Seattle and Reno. The Corporate headquarters is now in Vancouver, B.C. Ledcor purchased a small company as an entry into the building construction market and started the Industrial and Mining Construction Divisions. The company entered into the oil and gas well servicing business. The Civil Division also expanded into the underground installation of fibre-optics cable. Six construction divisions were created: Civil, Mining, Telecommunications, Pipeline, Industrial and

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## Company Profile

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**Building Construction.** This restructuring process, which was initiated during one of the most severe slumps in construction in recent Western Canadian history, enabled Ledcor to achieve substantial growth during a period of severe economic downturn.

In the 1990's Ledcor continued to grow and now provides construction services as a general contractor, construction manager and design/build contractor. In our last fiscal year, we carried out over \$750 million of construction, making Ledcor the second largest contractor in Canada and the largest open shop contractor. The building division is active in the construction of shopping centres, office buildings, residential buildings, warehouses and light industrial buildings.

Ledcor is a product of the strength, dedication and loyalty of its employees. The senior employees are shareholders in the company, giving them a special interest in all of our projects. Led by these people our experienced personnel, using proven management systems and construction techniques, are successfully completing projects that meet our customers' expectations and are completed on time and on budget.

Ledcor Industries is registered in most Canadian provinces, in nine western American states and in Mexico.

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### Active Geographic Market(s):

Canada

United States

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### Recent Project(s):

**Name:** Revenue Canada Office, Surrey, B.C.

**Description:** In December 1996, Public Works and Government Services Canada issued a Request for Proposals (RFP) for the design/build of an office accommodation on the existing site of the Taxation/Data Centre in Surrey, B.C.

The RFP asked design/build contractors to provide proposals for all services necessary to deliver a building with 10,6000 sq metres of rentable area at a budget of \$15 million or less.

The RFP stated that the overall intent is to provide a cost effective, 30 year building, with low maintenance and energy consumption.

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## Company Profile

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**Name:** Metro-McNair Clinical Laboratory and Office

**Description:** Metro McNair Clinical Laboratories is the largest medical specimen testing company in British Columbia. This building, a new centralized testing facility located in Discovery Park, Burnaby, processes medical specimens from over 120 collection stations in B.C.

The design of the building focuses on the medical lab at the lower floor of the two storey building. The remainder of the building includes offices, administration, teaching, meeting and support services for personnel attached to the laboratory.

All areas and functions are organized around a central atrium which is provided to enhance communications, improve light levels, and create a sense of shared vision and purpose for the restructured company. The 4,300 sq.m. facility is constructed on a three acre site and includes 84 covered parking spaces, and landscape.

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## Company Profile

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### Matsuzaki Architects Inc.

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**Address:** 2410 - 1177 West Hastings Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 685-3117

**Postal/Zip:** V6E2K3

**Fax:** (604) 685-3180

**E-Mail** matsu@direct.ca

**Web Site:**

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#### Key Contact(s):

**Name:** Ms. Eva Matsuzaki

**Name:** Mr. Kiyoshi Matsuzaki

**Pos Title:** Principal

**Pos Title:** Principal

**E-Mail:** matsu@direct.ca

**E-Mail:** matsu@direct.ca

**Tel:** (604) 685-3117

**Tel:** (604) 685-3117

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**Branches:** Vancouver

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#### Business Description:

Matsuzaki Architects Inc. offers a comprehensive consulting service covering a wide range of project types and sizes. These include providing full architectural services for residential, commercial and institutional projects. The firm's experience also includes urban design, interior design and facilities programming. The firm has serviced a wide range of client groups, both private and public and takes pride in providing a diversity of professional service.

Matsuzaki Architects Inc. is at the leading edge of environmentally sensitive design and the creation of healthy work environments. The firm carries on research in this area which is implemented into all projects. Special attention is given to sustainable site developments, daylighting, natural ventilation, environmental control systems, indoor air quality and the selection of building material which are re-usable, recyclable, have low embodied energy and are safe/non-toxic.

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#### Active Geographic Market(s):

Japan

Canada

China

United States

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#### Recent Project(s):

**Name:** Neptune Food Services Headquarters, Delta, B.C.

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## Company Profile

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**Description:** This new 245,000 sq.ft. facility, located in the Annacis Island Business Park, is comprised of a central office building of 45,000 sq.ft. flanked by a dry goods warehouse to the west and a perishable goods warehouse to the east. Developed as a design-build project, this complex, completed in 1995, accomodates many energy-efficient design features. Waste heat is recovered from the refridgeration system and transferred to the foundation to prevent freezing and frost heaving. The building envelope is insulated to R-45 in the roof and R-42 in the walls. Offices are sited along the south-facing wall and designed to maximize natural daylighting. The Hi-Lo lighting system installed in the warehouse provides low electrical energy use. Economiser controls allow 100 per cent outdoor air circulation, providing 'free cooling' and significant energy savings. For its extensive integration of energy-saving design the project received BC Hydro PowerSmart's Design Excellence Award for 1995.

**Name:** N.W.T. Legislative Assembly Building, N.W.T.

**Description:** This project was done in association with Ferguson Simek Clark/Pin Matthews. The new Legislative Assembly Building for the Northwest Territories is located in a natural setting on the edge of Frame Lake in Yellowknife. The building design emphasizes the soft forms of the northern landscape. The plan radiates from the circular domed Assembly Chamber with each exterior space expanding towards views of the lake. Curved bands of skylights around the exterior of the Chamber and Caucus rooms bring natural light into interior circulation zones highlighting the relationship of the building to the landscape. Extensive use of natural materials was made throughout all aspects of the design. The facility provides sessional offices for all of the MLA's, Ministers, and the Speaker as well as permanent office space and support space for the Legislative Assembly staff. The 52,000 sq.ft. building was completed in 1993 for a construction cost of \$17 million.



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## Company Profile

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**Name:** Fraser Valley Credit Union, Clearbrook, B.C.

**Description:** The new 50,500 sq.ft. administration office and branch comprises five storeys above grade with one below grade level for storage. The architecture of the building was designed to maximize daylighting while limiting solar heat gain. Window areas are reduced on the east and west faces to minimize heat and glare. Ceilings slope up at the perimeter to increase daylight penetration and occupant perception of openness. South facing windows have a light shelf/sunscreen partway down the window. This serves to shade the windows from summer sun while deflecting indirect light into the interior of the building through the upper clerestory. The interior portion of the light shelf also serves as a radiant heating panel for perimeter heating. Skylights provide daylight to the banking hall, while interior walls are glazed to increase the penetration of natural light. A sod roof over the banking hall is used to provide insulation and reduce glare to upper level windows.

Natural ventilation is a key component of the building, with openable windows at each workstation that allow for cross ventilation. Supply and return air fan operation are controlled by building static pressure to respond to openable windows.

Lighting systems use indirect suspended fixtures with electronic ballast and T8 lamps to provide a high quality lighting environment. Perimeter lighting is controlled by daylighting sensors to turn interior lights off when sufficient natural light is available. This project was the recipient of B.C. Hydro PowerSmart's Design Excellence Award for 1994.

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## Company Profile

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**Name:** C. K. Choi Building, Vancouver, B.C.

**Description:** The C. K. Choi Building for the Institute of Asian Research at UBC is an interdisciplinary/multidisciplinary research facility for the Institute of Asian Research. The 30,000 sq.ft. facility strives to set a benchmark for collaborative research through an innovative design approach promoting interaction of people within the building as well as throughout the world via a state-of-the-art telecommunications system. The building was completed in 1996 for a construction cost of \$4.5 Million. The Choi Building also sets a new benchmark for sustainable design and construction. Four key environmental issues are addressed in this project.

1. **REDUCING IMPACT AND CONSUMPTION:** The city sewer connection was eliminated through the use of composting toilets and a greywater recycling system. The composting toilets save 1500 gallons of potable water per day. Captured rainwater and recycled greywater provide all landscape irrigation.

2. **OPERATING ENERGY OVER TIME:** Operating energy savings exceed ASHRAE 90.1 and the City of Vancouver's new Energy By-law requirements by more than 50%. This is the result of attention to building orientation and form to maximize daylighting as well as energy efficient construction detailing. Operating energy is also reduced by eliminating the use of a traditional centralized air handling system.

3. **EMBODIED ENERGY IN CONSTRUCTION:** As much as one half the materials in the Choi Building are reused or made with recycled content. Obvious examples are the reused heavy timber wood structure and reused red brick cladding. However, there are many less noticeable examples such as 100% recycled cellulose insulation and structural steel with 75% recycled content.

4. **LIVABLE WORKING SPACE:** For a building to achieve longevity, and in turn be sustainable, it must be comfortable for people to work in. Occupants of the Choi Building enjoy natural daylight and a continuous supply of 100% fresh air. Work spaces have individual heat controls and operable windows. Indoor air quality is enhanced through careful selection of materials ensuring the use of only non-toxic adhesives and finishes.

This project was the recipient of BC Hydro PowerSmart's Design Excellence Award for 1996, BOMA (B.C.) Earth Award 1996 and International Design Resource Award Competition Winner 1997.

**Name:** Brickyard Medical Clinic

**Description:** Nanaimo, 1995.

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## Company Profile

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### Penner & Associates Interior Design

**Address:** 2092 East 6th Avenue

**City,Prov:** Vancouver, BC

**Phone:** (604) 255-2049

**Postal/Zip:** V5N1P9

**Fax:** (604) 255-2079

**E-Mail** penner@infoserve.net

**Web Site:** www.ecodesign.bc.ca

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#### Key Contact(s):

**Name:** Robin McIntosh

**Name:** Shelley Penner

**Pos Title:** Associate

**Pos Title:** Principal

**E-Mail:** penner@infoserve.net

**E-Mail:** penner@infoserve.net

**Tel:** (604) 255-2049

**Tel:** (604) 255-2049

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**Branches:** Vancouver

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#### Business Description:

Penner & Associates combines full service interior design with environmental research and consulting. We integrate social and environmental responsibility in every project, considering occupant health and comfort, energy and resource efficiency, indoor air and light quality, adaptability and accessibility. With over 20 years of combined experience, Shelley Penner and Robin McIntosh design environments that respond to the psychological, social and physical needs of people. Design services cover new construction and renovation of commercial, institutional and residential projects.

We believe in a team approach with clients, building occupants, consultants and contractors, and encourage the development and realization of our clients' vision while creating timeless interiors that are beautiful, functional and affordable.

Elements found in nature are a constant source of inspiration in our design aesthetic. The site and architecture also form part of our design influence and we strive for a seamless transition from exterior to interior.

We offer a full range of interior design services, including programming, preliminary design, presentation drawings, design development, documentation, tendering and project coordination. Budgeting and scheduling are essential elements, which are established at the outset and refined as we progress through each phase. Working toward a closed loop philosophy, we consider initial, operating and lifecycle costs.

Penner & Associates emphasizes a multi-disciplinary and participatory approach. As part of a network of green consultants, Penner & Associates enlists the requisite expertise on a per project basis. We have extensive access to suppliers of building materials, products and systems. Technical resources include computerized drafting, electronic transfer of information and drawings, and computerized information

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## Company Profile

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management.

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### Active Geographic Market(s):

Canada

United States

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### Recent Project(s):

**Name:** Parkholm Lodge 1996-97, Chilliwack, B.C.

**Description:** Extended care facility renovation for patients with Alzheimer disease. The main objective was to provide a healthy environment - one that would be responsive to the needs of the patients, their families and the health care providers. In addition to environmental considerations, materials and finishes had to be cost-effective, readily available and durable. Penner & Associates developed a colour scheme to complement and reinforce the space plan.

Scope: Colour scheme

Client: RBO Architecture Inc.

**Name:** GVRD Directory

**Description:** GVRD Directory of Resource Efficient Building Products for Windows® 1st Edition 1998-99

Penner & Associates developed the Directory through an initiative by the Greater Vancouver Regional District (GVRD) to create markets for salvaged and recycled content building materials and reduce the waste stream to landfill. To ensure greater utility of the Directory, only products available in the GVRD are listed. Each of the products reviewed contain either salvaged material, recycled content, or have been engineered to utilize raw materials more completely and efficiently. Organized in the CSI Masterformat for quick and easy access, product reviews are found in Divisions 2-Sitework, 6-Woods & Plastics, 7-Thermal & Moisture Protection, 9-Finishes and 12-Furnishings. The next edition will be published in 2000. Related seminars are being presented to design firms and industry organizations.

Client: GVRD Policy & Planning Department, Waste Reduction & Recycling Section

**Name:** EcoDesign Website 1995-present

**Description:** The EcoDesign Website is a leading Internet resource on environmentally sensitive design and construction. Shelley Penner and Susan Morris originally developed the site for the EcoDesign Resource Society in 1995 with financial assistance from the Canada-BC Agreement on Communications and Cultural Industries. Since 1997, Penner & Associates and Susan Morris Specifications Limited, as current owners of the site, continue to provide articles, building product reviews and practitioner profiles.

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## Company Profile

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**Name:** Caesar's Landing Destination Resort 1997

**Description:** Kelowna, B.C.

New eco-destination resort.

Penner & Associates prepared an extensive report, developing guidelines and researching locally available, environmentally sensitive building products with Susan Morris Specifications Limited and Mnemosyne Architecture.

Client: Waterfront Plus Architecture & Planning

**Name:** Banyen Books & Sound 1996-97, Vancouver, B.C.

**Description:** Retail renovation.

A demising partition and separate entrances had for a long time severed Banyen Books' connection to the Sound store. The goal of this project was to strengthen the relationship between the two spaces while providing an updated, casual and healthy environment that reflects Banyen's social and environmental consciousness. With the bookstore generating the greatest sales, Banyen wanted to conduct the renovation while remaining open. This demanded the use of low emission building techniques, materials and finishes so as not to effect the customers and staff. Resource conservation was achieved through efficient use of materials, engineered wood products, designing and selecting materials for adaptability, and jobsite reuse and recycling.

Scope

- Layout, including reconfiguration of existing counters.
- Lighting layout.
- Colour scheme.
- Casework design.
- Working drawings.
- Project coordination.

Structural Engineer: Tricon Engineering Inc.

General Contractor: PureSpaces Systems Inc.

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## Company Profile

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### Prism Engineering Limited

**Address:** 200 - 4021 East Hastings Street

**City,Prov:** Burnaby, BC

**Phone:** (604) 298-4858

**Postal/Zip:** V5C2J1

**Fax:** (604) 298-8143

**E-Mail** info@prismengineering.com

**Web Site:** www.prismengineering.com

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#### Key Contact(s):

**Name:** Mr. Robert Greenwald

**Name:** Mr. Brian O'Donnell, P. Eng

**Pos Title:** Vice-President

**Pos Title:** President

**E-Mail:** robert@prismengineering.com

**E-Mail:** brian@prismengineering.com

**Tel:** (604) 298-4858

**Tel:** (604) 298-4858

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**Branches:** Burnaby

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#### Business Description:

Prism Engineering Limited is an electrical, mechanical and energy management consulting engineering firm. The company began operations in 1990.

Prism specializes in energy management projects for existing buildings, including building renovation projects, HVAC and mechanical upgrades, electrical and lighting upgrades, power factor and power quality analysis, CAD drawings and designs, utility monitoring and building systems integration.

The principals are Brian O'Donnell, P. Eng - President, Robert Greenwald, P. Eng - Vice President, with key personnel Casey Gaetz - Associate and Tom Miller P. Eng - Mechanical Engineering.

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#### Active Geographic Market(s):

British Columbia

Canada

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#### Recent Project(s):

**Name:** VanCity Saving Credit Union, Vancouver, B.C.

**Description:** Implemented lighting, controls and mechanical systems upgrades resulting in a 25% reduction in annual energy consumption.  
Facility renovations, HVAC upgrades and exterior lighting improvements of 9 additional branches.



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## Company Profile

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- Name:** University of British Columbia  
**Description:** Implemented lighting and controls systems upgrades resulting in a 30% reduction in annual energy consumption. This is a current & on-going project.
- Name:** Surrey School Board (School District #36)  
**Description:** Design electrical and mechanical systems renovations and expansion of 6 schools. Power factor and power quality and correction of 7 schools.
- Name:** Royal Bank of Canada - 100 B.C. Branches  
**Description:** Implemented lighting, controls and mechanical systems upgrades resulting in a 30% reduction in annual energy consumption. Facility renovations of 11 additional branches.
- Name:** Hong Kong Bank of Canada - 25 B.C. Branches  
**Description:** Implemented lighting and mechanical systems upgrades resulting in a 40% reduction in annual energy consumption.
- Name:** Colliers Property Management - HSBC Building  
**Description:** Implemented energy saving lighting systems and controls upgrade in 26 storey office building resulting in a 41% reduction in annual energy consumption.
- Name:** Canadian Airlines International - Operations  
**Description:** Vancouver Operations Centre  
Implemented lighting and mechanical systems upgrades resulting in a 29% reduction in annual energy consumption.  
Facility renovations.  
Energy Management systems installation and energy usage analysis.  
Usage monitoring.
- Name:** Canadian Airlines International - Cargo  
**Description:** Vancouver Cargo Facility  
Replacement of lighting systems to save energy and improve lighting conditions resulting in increased light levels while reducing annual energy consumption by 34%.  
Energy saving controls installation.
- Name:** Bentall Property Management - Numerous Buildings  
**Description:** Facility renovations and energy conservation system upgrades.
- Name:** Bank of Montreal - 43 B.C. Branches  
**Description:** Implemented lighting, controls and mechanical systems upgrades resulting in a 35% reduction in annual energy consumption. Facility renovations of 15 additional branches.

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## Company Profile

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### Proscenium Architecture + Interiors Inc

**Address:** Suite 400 - 1920 Wylie Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 879-0118

**Postal/Zip:** V5Y3N6

**Fax:** (604) 879-1486

**E-Mail** pai\_inc@istar.ca

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. Hugh Cochlin

**Name:** Ms. Jennifer Stanley

**Pos Title:** Associate

**Pos Title:** Principal

**E-Mail:** pai\_inc@istar.ca

**E-Mail:** pai\_inc@istar.ca

**Tel:** (604) 879-0118

**Tel:** (604) 879-0118

**Name:** Mr. Thom Weeks

**Pos Title:** Principal

**E-Mail:** pai\_inc@istar.ca

**Tel:** (604) 879-0118

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**Branches:** Vancouver

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#### Business Description:

PROSCENIUM ARCHITECTURE + INTERIORS INC. was formed by Thom Weeks and Jennifer Stanley as an architectural design firm focusing on the planning and design of public buildings. Combined, the two principals have over thirty years experience in a wide range of projects including theatres, libraries and galleries. This experience has been gained on projects in the United States, Ontario and British Columbia.

PROSCENIUM ARCHITECTURE + INTERIORS INC. has experience in the restoration, rehabilitation and renovation of existing buildings, as well as the planning and design of new facilities. Through rehabilitation of existing buildings, a tremendous amount of embodied energy is re-used rather than discarded as it would be by starting from scratch. The firm strives for a highly environmentally responsible approach to building and has gained experience in green building practices through projects such as the new head offices for Mountain Equipment Coop, an extensive re-habilitation of an existing 2 storey warehouse building in Vancouver.

PROSCENIUM ARCHITECTURE + INTERIORS INC. constructs three dimensional computer drawings, and renders them in house, to show our clients what the finished building could look like. The style of these images ranges from wireframe to realistic representations.

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#### Active Geographic Market(s):

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## Company Profile

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United States

Canada

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### Recent Project(s):

**Name:** Mountain Equipment Coop - Head Office

**Description:** 48,000 s.f. Renovation of an Existing 2 Storey Warehouse, Vancouver, B.C. 1997 -1999

The environmental objectives were paramount in this renovation to an existing 2 storey warehouse building into the new head office for Mountain Equipment Coop. This growing Canadian retailer's first environmental goal was to re-use an existing building rather than starting new. The task of fully upgrading this building to current seismic, environmental and life safety codes was enormous.

Daylighting has been optimized by adding 9 large translucent skylights and one main transparent skylight, while maintaining rigorous shading and light transmission criteria. Perimeter windows were both increased in size or added, along with exterior sun screens and a combination of adjustable interior light shelves and light reflectors. Fluorescent direct and indirect luminaries are on electronic dimmers and daylight sensors.

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## Company Profile

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### Quadra Pacific Consultants

**Address:** Suite 400 - 1550 Alberni Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 688-8671

**Postal/Zip:** V6G1A5

**Fax:** (604) 688-9760

**E-Mail** qpc@quadrapacific.com

**Web Site:** www.quadrapacific.com

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#### Key Contact(s):

**Name:** Mr. Peter Osuchowski, P. Eng

**Pos Title:** Principal

**E-Mail:** posuchowski@quadrapacific.com

**Tel:** (604) 688-8671

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**Branches:** Vancouver

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#### Business Description:

Quadra Pacific Consultants is the successor mechanical company to a consulting engineering firm which practised for thirty years until the retirement of the last founding partners in April 1986. All of the former company's mechanical principals and employees form the new company.

Mechanical engineering services include heating, ventilating, air conditioning, plumbing and fire protection services for commercial, residential, institutional and light industrial buildings.

Our green technologies are focused around ground source heat pumps. A ground source heat pump is a type of water loop heat pump that uses the earth or ground water as sources of heat in winter, and as a "sink" for heat removal from the building in summer. Heat is removed from the earth in the heating mode or transferred to the earth in the cooling mode through a liquid, usually water or antifreeze solution. This can be achieved through the open loop system (water is drawn from a well or lake and discharged back to the source) or the closed loop system (in a form of horizontal or vertical pipe loops). This system eliminates use of heating boilers and cooling towers.

#### Firm Principals:

Ian Wragge, P.Eng., Managing Partner

Peter Osuchowski, P.Eng., Principal

Robert Gedge, P.Eng., Principal

Graham Aspinall, Principal

Steve Iker, Principal

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#### Active Geographic Market(s):

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## Company Profile

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British Columbia

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### Recent Project(s):

**Name:** Trail Middle School, Trail, B.C.

**Description:** Ground Source Heat Pump System with open well water loop, free pre-cooling of ventilation air. This project is under construction.

Architect: DGBK Architects

Sponsor: West Kootenay Power Ltd.

**Name:** Kent Correctional Institute, Agassiz, B.C.

**Description:** New central ground source heat pump chiller system with open well water loop, direct contact solfame boiler for domestic hot water system, flue heat recovery economizer for existing heating boilers, heat recovery systems for living units. This mechanical upgrade project is at Design Development stage and is awaiting approval to proceed to Working Drawings stage.

Client: Public Works and Government Services Canada

**Name:** Discovery Place, Burnaby, B.C.

**Description:** Ground Source Heat Pump System with vertical close loop, heat recovery ventilation system, variable speed drive pumping system. This multi-tenant facility project is under construction.

Architect: Hancock Bruckner Architects

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## Company Profile

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### R. A. Duff and Associates Inc.

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**Branches:** Abbotsford, Vancouver, Victoria

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#### Business Description:

R. A. Duff & Associates Inc., Consulting Electrical Engineers, provides full engineering services from concept to commissioning on government, institutional, corporate, health care, educational, commercial, retail and industrial projects. The firm specializes in electrical, lighting, communications, and security consulting engineering. Since incorporation in 1971, R. A. Duff & Associates Inc. (RADA) have designed new and retrofitted electrical systems, which incorporate innovative new technologies that are sensitive and responsible to the environment. RADA is 100% Canadian owned and serves its clients in Western Canada, United States, and Central America from offices in Vancouver, Victoria, and Abbotsford.

The firm has specific experience in energy efficiency design, 'green' engineering and is active with the Illuminating Engineering Society of North America, the Commercial Building Incentive Program, B.C. Hydro, and ASHRAE. Specialty services include: modeling of lighting systems, energy use analysis, energy retrofit design, building energy assessments / audits.

The firm has also been recognized by the Power Smart Award Program.

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#### Active Geographic Market(s):

Canada

United States

Central America

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#### Recent Project(s):

**Name:** Vancouver International Airport, Richmond, B.C.



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## Company Profile

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**Description:** Vancouver International Airport International Terminal Building Expansion

The Vancouver Airport is a thriving community that is expanding at a phenomenal rate to handle the enormous demands placed on it. The Airport Authority has embraced technology to help manage the volume of people and cargo transported through the terminals.

Sustainable and energy efficient design features include a ground water heat pump system, occupant sensitive elevator systems, high efficiency lighting, and integrated lighting control.

This \$180 million project is presently under construction.

**Name:** UBC Central Library, Vancouver, B.C.

**Description:** University of British Columbia Walter C. Koerner Library, Vancouver, B.C.

Renovation of the existing building (seismic, life safety systems, energy efficiency upgrade to lighting and HVAC) and addition of a 7 storey, 60,000 sq.ft. west tower interconnected to the existing building. The masterplan calls for Phases 2 and 3 each of which will add 250,000 sq.ft. and 100,000 sq.ft. respectively to the Phase 1 design. Features of the project include meticulous design of all services (architectural service canopies) and careful selection of luminaires for aesthetics and functionality due to exposed structure throughout the majority of the facility. Implementation of energy saving equipment and devices, including T-8 32-watt lamps, electronic ballasts, centralized lighting controls, day lighting controls, occupancy sensors, low E fritted glazing, variable speed drives, and suspended fluorescent linear luminaires for new bookstack lighting. The existing facility remained in full use throughout the duration of the construction of the new tower.

This \$2.4 million electrical project was completed in August 1996.

**Name:** SFU West Mall Complex, Vancouver, B.C.

**Description:** Simon Fraser University West Mall Complex, Burnaby, B.C.

New complex which includes approximately 200,000 sq. ft. of classroom, lecture theatres, microcomputing laboratory, study and departmental facility office / administrative space complete with a full kitchen/cafeteria and a further 75,000 sq. ft. of enclosed parking.

Sustainable and energy efficient design included day lighting, integrated lighting controls including occupancy and dimming, ice storage for chiller to reduce peak electrical demand.

This \$32 million project was completed in 1994.

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## Company Profile

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**Name:** Rick Hansen Secondary School, Abbotsford, B.C.

**Description:** A new \$22 million secondary school in the Abbotsford School District. The project comprised a single new structure designed for barrier free access throughout for staff and students.

Sustainable and energy efficient design included day lighting, automated lighting controls, high efficiency lighting systems, high efficiency motors and controls.

This project, completed in 1993, received an Honourable Mention for the 1993 BC Hydro Power Smart Design Excellence Award.

**Name:** Richmond City Hall, Richmond, B.C.

**Description:** New City hall for the City of Richmond, Richmond, B.C.  
Intelligent Building structured communication cabling system and communication room design for voice, data, video systems, raceway/cable tray infrastructure.

A new 120,000 square foot municipal government building for the City of Richmond. The building comprises an office tower, council chamber, meeting house and an underground parkade. A fully landscaped site/ plaza is also included for public activities. This building was designed to meet sustainable building design criteria which maximize use of day lighting and minimizes use of artificial lighting. Innovative lighting designs with latest technologies, including day lighting sensors and dimming ballasts were included in the design to minimize energy.

This \$3.5 million electrical project is under construction with a scheduled completion of March 2000.

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## Company Profile

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### Read Jones Christoffersen Ltd

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**Postal/Zip:** V6H3X8

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#### Key Contact(s):

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**Pos Title:** Principal and Vice-President, B.C.  
Region

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**Branches:** Calgary, Edmonton, Nanaimo, Toronto, Vancouver, Victoria

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#### Business Description:

Read Jones Christoffersen, which recently celebrated its 50 year anniversary, specializes in the structural engineering design of buildings, the functional planning of parking garages and the structural restoration and seismic reinforcement of heritage structures and other buildings. The firm has designed a significant portion of the buildings in major Canadian cities, as well as projects in foreign countries. Recently, the firm has designed a number of projects incorporating the principles of sustainable design.

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#### Active Geographic Market(s):

Canada

United States

India

Japan

Germany

China

Mexico

Hong Kong

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#### Recent Project(s):

**Name:** New Village for Mowachat Muchalaht Band

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## Company Profile

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**Description:** New village for Mowachat Muchalaht Band in Gold River, B.C.. Read Jones Christoffersen was responsible for the structural engineering design of the project.

**Name:** C. K. Choi Building, UBC, Vancouver, B.C.

**Description:** C. K. Choi Building for the Institute of Asian Research, Vancouver. Read Jones Christoffersen Ltd was responsible for the structural engineering design of the building

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## Company Profile

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### Reid Crowther & Partners Ltd.

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#### Key Contact(s):

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**Branches:** Abingdon - U.K., Burnaby, Calgary - Alta, Edmonton - Alta, Jakarta - Indonesia, Kelowna, Lethbridge - Alta, Nanaimo, Nelson, Nigeria - Lagos, Red Deer - Alta, Regina - Sask, Seattle - USA, St. Michael - Barbados, Surrey, Victoria, Winnipeg - Man., Yellowknife - N.W.T.

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#### Business Description:

Reid Crowther & Partners Ltd. is an independent consulting company specializing in building engineering, transportation, municipal infrastructure, environment and industrial. The firm's history goes back to 1906 and the professional and corporate development which followed spans the history of consulting engineering in Canada. Its multi-faceted services are now engaged by the private and public sectors on a global basis.

Reid Crowther & Partners provides a wide variety of professional engineering services including building engineering services, municipal land development, transportation planning, marine design, waste-water and water-supply engineering, environmental engineering, structural design of buildings, bridges and transportation related structures, manufacturing and industrial.

Engineering disciplines represented within the firm include civil, electrical, mechanical, environmental, transportation, structural and industrial.

The scope of Reid Crowther's services range from project definition, capital cost analysis, functional planning, concept design and pre-design studies, through detailed design, project management and construction management, to commissioning and assistance with operations and maintenance.

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#### Active Geographic Market(s):

Canada

Central America

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## Company Profile

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Central Asia

Africa

Southeast Asia

Europe

Middle East

North America

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### Recent Project(s):

**Name:** Vancouver City Saving Credit Union, B.C.

**Description:** The new headquarters of the Vancouver City Savings Credit Union (VanCity) is situated in a most unusual location - over SkyTrain's Main Street Station! Yet, few of the thousands of commuters who pass underneath know the engineering history of the building.

Van City wanted their headquarters to be a "green" building, providing a healthy environment for their workers and the community, and at the same time be built at a reasonable cost.

As mechanical engineers, Reid Crowther faced the brunt of the green challenge. To come up with an integrated solution, Reid Crowther's engineers brainstormed new ideas and evaluated each option. Computer models were used to estimate energy savings.

Some of the mechanical features selected for the project include:

- cooling equipment using an ozone-friendly refrigerant.
- high efficiency boilers and motors.
- computerized controls to flush the building with outdoor air in the morning before people arrive.

VanCity, their employees and others are enjoying the benefits of the building design. Independent testing has proven superior air quality, energy savings are being realized, construction budgets and schedules were met, and the SkyTrains keep moving.

**Name:** Sun Rivers Community, Kamloops, B.C.

**Description:** The site for the Sun Rivers community is a 186 hectare (460 acre) gently sloping hillside overlooking the South Thompson River in Kamloops, British Columbia. The ultimate goal for development at Sun Rivers was for the community plan to balance social, environmental and economic imperatives. A more complete community--one that includes places to live, places to work, places to shop and places to recreate--was to be achieved. Planning and design had to respect the natural character of the semi-arid setting.



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## Company Profile

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**Name:** Summerland Wastewater Treatment Plant, B.C.

**Description:** The Summerland Wastewater Treatment Plant is an advanced treatment system which employs a combination of physical and biochemical process to remove pollutants from the wastewater prior to discharging it into Okanagan Lake. Coarse solids in the sewage arriving from the collection system are first removed by mechanical screening and settling tanks. Following this "primary" treatment step, the wastewater enters the bioreactor, where three distinct environments are carefully maintained to allow for natural removal of phosphorus, nitrogen, and carbon. The secondary clarifiers remove the bulk of the solids from the treated wastewater, which is then filtered to remove any remaining solids that don't settle. Finally, the water is disinfected by ultraviolet light to inactivate germs and parasites.

Since the project began, the contractor and Reid Crowther have been working together as a "design-build" team to bring the project completion. This innovative method of construction allows the contractors and engineers to meet regularly to present and discuss the merits of cost-saving methods of construction, while still meeting the standards of the design. To date, several alternatives have been discussed and adopted, with the resulting cost savings passed on to the District of Summerland to reduce the total cost of construction.

**Name:** Revenue Canada Office, Surrey, B.C.

**Description:** Building uses energy efficient indirect lighting which reflects off the building ceiling structure, eliminating the need for a suspended ceiling.

**Name:** Gallagher's Canyon Residential Dev., Kelowna, B.C.

**Description:** Since opening for play in 1980, Gallagher's Canyon Golf Resort has become one of the significant recreational resources in Kelowna and throughout the Okanagan Valley. The development plan introduced a residential environment that combines nature, recreational elements and a healthy lifestyle.

Reid Crowther has been actively involved since development inception to prepare a comprehensive stormwater management plan, sewage collection and treatment facility and private internal road system that does not require capital or maintenance expenditures by the City of Kelowna.

The stormwater management plan includes a series of detention areas that fully retain runoff from the residential clusters for re-use in golf course irrigation and groundwater re-charge.

The sewage treatment facility incorporates primary and secondary treatment along with in-ground disposal beneath the newly developed golf learning centre. Reid Crowther provides on-going monitoring of the disposal field and treatment facility operations.

**Name:** Engineering Association Headquarters, Burnaby, BC

**Description:** Project received a BC Hydro Power Smart Award of Excellence

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## Company Profile

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### Robert Freundlich & Associates Ltd

**Address:** 60 Bastion Square

**City,Prov:** Victoria, BC

**Postal/Zip:** V8W1J2

**Phone:** (250) 386-6721

**Fax:** (250) 386-2844

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#### Key Contact(s):

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**Branches:** Vancouver, Victoria

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#### Business Description:

Robert Freudlich & Associates Ltd., Consulting Electrical Engineers, provides full engineering services from concept to commissioning on government, institutional, corporate, health care, educational, commercial, and industrial projects. Since conception in 1974 and incorporation in British Columbia in 1977, Robert Freundlich & Associates Ltd. has designed new and retrofitted electrical systems, which incorporate innovative new technologies that are sensitive and responsible to the environment. Robert Freundlich & Associates Ltd. is 100% Canadian owned and serves its clients in Western Canada from offices in Vancouver and Victoria, British Columbia

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#### Active Geographic Market(s):

Canada

Bermuda

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#### Recent Project(s):

**Name:** White Rock Sewage Lift Station

**Description:** White Rock Sewage Lift Station and Stanby Power, Vancouver, B.C.

**Name:** Vancouver International Airport, Richmond, B.C.

**Description:** Vancouver International Airport New Terminal Building.

**Name:** The C. K. Choi Building, UBC, Vancouver, B.C.

**Description:** The C. K. Choi Building for the Institute of Asian Research, Vancouver, B.C.

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## Company Profile

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**Name:** Marigold Sewage Treatment Lift Station

**Description:** Marigold Sewage Lift Station and Stanby Power, Victoria, B.C.

**Name:** Manson Canal High Volume Drainage Pump Station

**Description:** Manson Canal High Volume Drainage Pump Station, Vancouver, B.C.

**Name:** Liu Centre, UBC, B.C.

**Description:** The Liu Centre for the study of global issues.

**Name:** Forest Science Centre

**Description:** Forest Science Centre, Vancouver, B.C.

**Name:** Basin Bay Sewage Treatment Plant

**Description:** Basin Bay Sewage Treatment Plant Certification Facility, Victoria, B.C..

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## Company Profile

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### Roger Hughes + Partners Architects

**Address:** 300 - 1508 West Second Avenue

**City,Prov:** Vancouver, BC

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#### Key Contact(s):

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**Branches:** Vancouver

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#### Business Description:

Roger Hughes + Partners Architects are a firm specializing in providing a full range of architectural services to public and private sector clients. With over 20 years of practice in British Columbia, we have completed a series of award winning projects for our clients that have been recognized not only for their excellence of design but also for their enduring appeal to their users and the community at large.

We are committed to a philosophy of sustainability that is founded on a respect for time, place, and an economy of means. Through extensive experience with budgets and schedules, we have developed methods that allow us to produce high-quality, well-designed buildings within the familiar constraints of time and budget.

At Roger Hughes + Partners Architects, we are committed to producing buildings that have a reduced environmental impact, fulfill our client's goals, reflect the art of architecture, and withstand the test of time.

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#### Active Geographic Market(s):

British Columbia

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#### Recent Project(s):

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## Company Profile

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**Name:** Walnut Grove Aquatic Facility, Langley, B.C.

**Description:** Located in Langley, B.C., the Walnut Grove Aquatic Facility is an addition to an existing community centre. Completed in 1999, this \$11.5 million project is a state-of-the-art community recreation facility. Sustainable design elements include careful siting of the building, efficient material use, daylighting, and natural ventilation.

**Name:** University Hill Elementary School, Vancouver, B.C.

**Description:** Located on the boundary of Pacific Spirit Park, this project is a replacement school designed for a student population of 450 students with a gross floor area of 3,500 square meters. Green building goals achieved in this project included re-use of the old school's boilers, refurbishment and re-use of the old school's furnishings, use of natural lighting to the classrooms and corridors, use of natural materials and finishes; and the preservation of mature trees and existing playfields.

**Name:** Rogers Elementary School, Saanich, B.C.

**Description:** The winner of a provincial competition, the school design represents a new generation of school design. Located near a nature sanctuary, the school is sited to take advantage of the significant natural features of the site while anticipating the demands for future expansion and growth. Energy savings from natural light reflected off sloping ceilings and natural cross ventilation from clerestory windows makes Rogers Elementary an environmentally "green" building.

**Name:** Rear Yard Infill House, Vancouver, B.C.

**Description:** A modest addition, this project demonstrates a means of increasing density within an existing residential neighbourhood. The building is heated and cooled using passive systems. Water conservation is achieved with a collection pond, which also provides a focal point to the tiny garden area off the living room. The use of recycled building materials such as exposed recycled timbers, plumbing fixtures, and salvaged wood floors were chosen because their embodied energy has already been expended over the life of one building.

**Name:** CRD Engineering Building, Victoria, B.C.

**Description:** This building is intended as a model of an environmentally responsible and sustainable approach to design. Features include natural ventilation, day-lighting, and the retention and treatment of water.

**Name:** Centennial Square, Victoria, B.C.

**Description:** Revitalization and Master Plan - First place in the Centennial Square Design Competition was awarded to Roger Hughes Architects in July 1996. Our competition-winning master plan for the revitalization of Centennial Square in Victoria, B.C. involves the redevelopment of the precinct surrounding Victoria City Hall. The urban design incorporates residential, office, and retail space as well a site for the Art Gallery of Greater Victoria linked together using a series of new public circulation and gathering spaces. Our strategy incorporates many sustainable design concepts into the design, including orientation, natural lighting and ventilation, resource efficiency as well as rainwater collection and re-use. We are currently working with the City of Victoria on the first phase of this multi-phased project.

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## Company Profile

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**Name:** AIBC Offices, Vancouver, B.C.

**Description:** Interior Office Renovation - As the headquarters for a provincial architectural association with a mandate for environmental responsibility, principles of "green" design are employed in this office's design. Sustainable strategies include recycling existing building components, natural ventilation, low energy monitored lighting, and the use of construction materials which are recyclable, have low embodied energy, and low toxicity. The design strategy revives the grandeur of the old heritage building's interior by preserving the interior elements as they were found.



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## Company Profile

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### Sharp & Diamond Planning and Landscape Architecture

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**Branches:** Vancouver

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#### Business Description:

From high-density downtowns to rural, coastal and mountain environments, Sharp & Diamond provide creative responses for clients in British Columbia and across North America. In addition to extensive work in park, and site planning, the firm specializes in the following areas: waterfront amenities, park and garden structures, environmental restoration, public participation and urban design. Sharp & Diamond is one of the leading landscape architecture and planning firms in Western Canada.

Some typical projects include corporate business parks, mixed use residential, environmentally sensitive areas (estuaries, streams), rivers and greenways with interpretive features.

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#### Active Geographic Market(s):

Canada

United States

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#### Recent Project(s):

**Name:** Sunlife Airport Executive Park, Richmond, B.C.

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## Company Profile

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**Description:** The Sunlife Airport Executive Park encompasses the following green statements:

**Building shading**

- Deciduous trees planted adjacent to south and west sides of the building help to reduce heating and cooling requirements of the building. During the summer, shading of the walls and windows reduces sun exposure and unwanted heat gain. During the winter, the south sun exposure allows for passive heat gain.

**Tree transplanting**

- Existing large coniferous and deciduous trees were either retained in place and incorporated into the design or were transplanted on site. This will reduce energy requirements to cultivate and transport trees from a nursery.

**Water consumption**

- The pond water will originate from the roof of the building, with only excess water being discharged to the storm system. The pond water will be recirculating and not a flow through design, further reducing waste water.

- The irrigation system is designed to optimize water use with an efficient layout that separates the shrub and lawn areas and avoids over watering. Better control of watering allows water to be placed where it is needed and in the correct amounts and rain sensors will interrupt operation of the system when it is not required during wet weather.

**Grass Paving**

- 56 parking stalls will be 'surfaced' with grass reinforced with a porous solid plastic grid. This will reduce asphalt paving by 9300 square feet and is made from recycled plastic.

- Grass paving in combination with tree shading reduces heat gain of asphalt surfaces further reducing heat gain around the building.

- The permeable grass paved surface allows water to drain into the ground, reducing the amount of storm water and helping to recharge ground water.

**Plant selection**

- A mix of native and cultured plant species have been selected for their moderate water requirements during and after establishment. Maintenance requirements are reduced by utilizing perennial ground covers and flowers, taller grasses, selecting plants suitably sized to their setting or require little attention. Also, aspects of Integrated Pest Management are used by selecting companion plants and providing proper growing conditions that improve plant health and reduce supplemental fertilizing and pesticide use.

**Site furnishings**

- Existing furniture will be re-used on site and new furniture will be sourced from local manufacturers to reduce transportation and support the local economy.

**Name:** Several Parking Areas, Vancouver, B.C.

**Description:** Several parking areas have been surfaced with grass reinforced with a porous plastic grid. Grass in the parking lot keeps cars cooler, allows water to percolate and reduces the number of catch basins required.

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## Company Profile

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**Name:** Crestwood Corporate Centre, Richmond, B.C.

**Description:** In this 8 phase corporate centre, Sharp & Diamond developed detailed site plans for several corporate headquarters. In keeping with the spacious park like setting of the overall project, mature trees, broad lawns and accent flower/shrub beds were connected by sidewalks and a perimeter jogging path. Individual landscapes for the separately designed buildings were distinguished by fountains, unique paving details, entry/arrival areas, staff amenity spaces and foundation plantings. Several parking areas have been surfaced with grass reinforced with a porous plastic grid. Grass in the parking lot keeps cars cooler, allows water to percolate and reduced the number of catch basins required.

This project received an Urban Design Institute award in 1990, 1994 and 1997 for best commercial development.

**Name:** Broadway Tech Centre, Vancouver, B.C.

**Description:** Broadway Tech Centre will be a high amenity high tech corporate park in a mature parklike setting. The extensive landscape treatment will feature large shade trees, open lawn areas, perennial flower beds, ornamental grasses and a diversity of plant species. Amenity areas for staff and visitors comprise an outdoor cafe terrace by the cafeteria and water garden, a BBQ pavilion with picnic area, quiet sitting areas with benches in the sun and shade as well as patios and lawn areas for social gatherings. Outdoor recreational spaces include a combined basketball and roller hockey court, an outdoor exercise terrace and a looped walkway system used for fitness.

Water is a strong organizational element and feature of Broadway Tech Centre. Rainwater collected off landscape areas will flow in a series of channels, along steps, over water walls and through quiet water gardens. Summer cooling and the amenity of flowing water will be provided by a recirculation system. The feature waterfalls will be a component of a central 'thermal plant', providing cooling for up to five of the proposed buildings. Building 5 at the centre of the site will be surrounded by water in a channel lined with trees and water plants. Landscape areas will include efficient lawn sprinkler and drip irrigation systems to conserve water use.

Environmental strategies to reduce energy and water consumption include trees for shading, porous grass paving in parking areas to reduce outside ambient temperatures, local materials and products and drought-resistant native plants. Shade trees will be planted next to the buildings for shading and reducing cooling loads. Vehicular areas, plazas and walkways surfaced in unit pavers will create a continuous pedestrian character. Bicycle facilities and pedestrian connections to the proposed Renfrew SkyTrain station and city bus stops will be provided as alternatives to automobile use. Glazed canopies will connect the buildings and outdoor spaces.

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## Company Profile

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### The Sheltair Group Resource Consultants Inc.

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**Pos Title:** President

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**Branches:** Vancouver

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#### Business Description:

We are designers, engineers and environmental specialists dedicated to creating a greener built-environment. We provide practical and innovative solutions to improve the performance of both individual buildings and communities as a whole.

Services include building performance assessment, guidelines for sustainable buildings and communities, integrated infrastructure and resource planning, urban growth analysis and forecasting.

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#### Active Geographic Market(s):

Canada

United States

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#### Recent Project(s):

**Name:** Southeast False Creek, Vancouver, B.C.

**Description:** Leading a multi-disciplinary team of experts, the Sheltair Group was retained by the City of Vancouver to examine the potential for sustainable urban development of the Southeast False Creek area.

Southeast False Creek is intended to be "a model for sustainable urban development" located on the last harbourfront lands in Vancouver. The city proposes to transform approximately 80 acres of industrial lands into a mixed-use residential neighborhood, embodying principles of economic, ecological and social sustainability, defined and elaborated by Sheltair.

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## Company Profile

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Sheltair prepared a report for the City of Vancouver that:

- defined "sustainable urban development" appropriate to the scale, location, context, opportunities and constraints of the Southeast False Creek site.
- established core indicators and targets for ecological and resource performance of the new community.
- presented a comprehensive report on green urban community development precedents to show the current state-of-the-art.
- created a framework for Full Cost Accounting of community development, used by the city in this and future initiatives.

The report has been called "... the most comprehensive review of the real-world issues of reconciling urban development and ecological responsibility to date."

City Councillors recognized the report as "...breaking new ground in developing and managing cities, protecting the natural world while making financial sense".

**Name:** Green Building Guidelines, Santa Monica, CA

**Description:** Sheltair is helping the City of Santa Monica reduce the ecological impacts and resource use of their building stock by creating "green building" design and construction guidelines for use on new municipal and institutional building construction within the municipality. In addition to creating a document providing advice and information for developers, designers and builders, Sheltair is helping the city redraft its municipal ordinances, and set up a program to administer the guidelines application.

The guidelines document will provide building designers and developers with detailed design and construction advice, in the form of "Recommended Practices" tailored to the Santa Monica context. The document summarizes the latest techniques to reduce energy, water and material resource consumption; pollution generated by buildings and their materials; and enhance the quality of new and retrofit building construction. Information in the Recommended Practices includes detailed design advice, capital costs, useful precedents, photos, diagrams and information resources.

The guidelines will be used in all new city-owned developments, and a program is being created to encourage their voluntary adoption by private sector developers.

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## Company Profile

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**Name:** Community Energy Plan, Revelstoke, B.C.

**Description:** Sheltair worked with city staff and the private sector to create a community energy plan focusing on building energy conservation, and a district heating plant using renewable wood waste. A number of scenarios for growth and energy use over the next 20 years were examined to evaluate their economic, ecological and social impacts on this B.C. community of 8,000.

Enthusiastically adopted by Revelstoke City Council and staff, implementation of the Community Energy Plan is forecast to:

- reduce household expenditures on energy by 7%;
- create 26 full time jobs, in energy auditing and conservation retrofits and operation of the district heating system;
- reduce per-capita carbon dioxide emissions by 16% from 1996 levels; and
- save \$10 million dollars otherwise spent on energy by the community between 1996 and 2016.



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## Company Profile

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### G. F. Shymko & Associates, Inc.

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**Address:** 1502 - 2045 Nelson Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 889-4597

**Postal/Zip:** V6G1N8

**Fax:** (604) 899-4591

**E-Mail** gfshymko@home.com

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. Gordon Shymko, P. Eng.

**Name:** Mr. Michael Wilson, P. Eng.

**Pos Title:** Principal

**Pos Title:** Associate

**E-Mail:** gfshymko@home.com

**E-Mail:** gfshymko@home.com

**Tel:** (403) 254-4776

**Tel:** (604) 889-4597

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**Branches:** Calgary, Vancouver

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#### Business Description:

G. F. Shymko & Associates and its Principal have been active in the fields of energy analysis and management, alternative energy development and application, and sustainable/advanced building design for over 16 years. Our award winning firm offers a full range of services including building energy analysis and computer simulation, retrofit analysis and planning, integration design facilitation, energy management and sustainability planning, Energy Performance Contracting consulting, and training in all the aforementioned areas. We are approved Design Facilitators for the CANMET C-2000 Program for Advanced Commercial Buildings and approved simulation consultants and standing experts for the NRCan Commercial Building Incentive Program.

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#### Active Geographic Market(s):

Canada

United States

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#### Recent Project(s):

**Name:** Yukon Energy Corporation, Whitehorse, YT

**Description:** A CANMET C-2000/CBIP Project, and winner of the 1999 Canadian National Energy Efficiency Award. Services Provided: C-2000 multi-disciplinary design facilitation and DOE computer simulation for 15,000 s.f. facility, meeting or exceeding all C-2000 energy and environmental performance criteria, including energy use less than 50% of the Model National Energy Code; no incurred incremental capital cost relative to conventional construction.

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## Company Profile

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**Name:** Gradin Green Condominium Complex, Edmonton, Alta.

**Description:** A NRCan CBIP and Canada Mortgage and Housing Corporation sustainable housing project. Services Provided: Sustainability and energy consulting for 36 unit high rise complex, including DOE computer simulation. Energy Performance less than 65% of the Model National Energy Code.

**Name:** Crestwood Commercial Park, Richmond, B.C.

**Description:** Building 8

A CANMET C-2000 Demonstration Project, Finalist - 1999 Canadian National Energy Efficiency Award, 1996 BC Hydro Award of Excellence. Services Provided: Multi-disciplinary design support and integration for this 80,000 s.f. facility, meeting or exceeding all C-2000 energy and environmental performance criteria, including energy use less than 50% ASHRAE/IES 90.1.

**Name:** Canada/U.S. Border Crossing Facility

**Description:** The border crossing facility is in Sweetgrass, Montana. A joint Public Works and Government Services Canada and U.S. General Services Administration project. Services Provided: Sustainability and energy consulting and multi-disciplinary design facilitation for 75,000 s.f. combined facility, including DOE computer simulation.

**Name:** Alice Turner Public Library, Saskatoon, Sask.

**Description:** A CANMET C-2000/CBIP Project, and finalist for the 1999 Canadian National Energy Efficiency Award. Services Provided: C-2000 multi-disciplinary design facilitation for 15,000 s.f. facility, meeting or exceeding all C-2000 energy and environmental performance criteria, including energy use less than 35% of the Model National Energy Code; no incurred incremental capital cost relative to conventional construction.

**Name:** Agriculture Canada, Agassiz, B.C.

**Description:** PARC Research Centre

Services Provided: Expert review, concept, and design development of a central groundwater heat pump HVAC system with Aquifer Thermal Energy Storage for a 120,000 s.f. laboratory facility.

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## Company Profile

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### Theodor Sterling Associates Ltd.

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**Address:** #310-1122 Mainland Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 681-2701

**Postal/Zip:** V6B5L1

**Fax:** (604) 681-2702

**E-Mail** sterling@assist.ca

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. Elia Sterling

**Pos Title:** President

**E-Mail:** sterling@assist.ca

**Tel:** (604) 681-2701

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**Branches:** Vancouver

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#### Business Description:

Theodor Sterling Associates have pioneered an interdisciplinary and innovative approach to environmental and building science and technology. Specializing in the indoor environment, the company provides effective solutions for enhancement of occupant comfort and reduction of exposure to health risks while achieving energy efficiency in both new and existing office, commercial, institutional, residential, recreational and industrial buildings.

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#### Active Geographic Market(s):

Canada

United States

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#### Recent Project(s):

**Name:** VanCity Savings Credit Union, Vancouver, B.C.

**Description:** Proactive Indoor Air Quality management, including pre-occupancy (immediately following construction of the new facility) and post-occupancy IAQ monitoring.

**Name:** Jack Davis Building, Victoria, B.C.

**Description:** Identification of and response to issues related to indoor air quality, ergonomic and other environmental concerns during the pre-design and design phases. Provision of pro-active commissioning and IAQ monitoring after construction and during occupancy.

Award: BC Hydro PowerSmart Design Excellence

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## Company Profile

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**Name:** Forintek Head Office, UBC, Vancouver, B.C.

**Description:** Coordinated the demand side energy management portion of the project as a pilot for B.C. Hydro's Powersmart Program.

Award: BC Hydro's PowerSmart Design Excellence

**Name:** Environmental House, Vancouver, B.C.

**Description:** Special features include ESWA radiant heating panels installed in the ceilings to provide clean, quiet heat, and pearl tone oak floors throughout the main living areas to radiate the warmth.

**Name:** Crestwood Corporate, Richmond, B.C.

**Description:** Development and implementation of total environmental and sustainable building performance criteria for buildings 2 and 8, including indoor air quality, greenhouse gas emissions, ozone depleting substances, solid waste reduction and water use during the pre-design and design phases.

Award: Federal Government C-2000 Advanced Commercial Buildings Program Award.

Client: Bentall Developments Inc.

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## Company Profile

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### Urban Ecology Design Collaborative

**Address:** 1662 West 75th Avenue

**City,Prov:** Vancouver, BC

**Phone:** (604) 264-7944

**Postal/Zip:** V6P6G2

**Fax:** (604) 264-7955

**E-Mail** mattock@helix.net

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. Chris Mattock

**Name:** Mr. David Rousseau

**Pos Title:** Principal

**Pos Title:** Principal

**E-Mail:** mattock@helix.net

**E-Mail:** drouss@oberon.ark.com

**Tel:** (604) 264-7944

**Tel:** (604) 264-7944

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**Branches:** Vancouver

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#### Business Description:

Urban Ecology Design Collaborative is an affiliation of design professionals who are committed to the principles of sustainable design. We share a common belief in the importance of a broad and varied knowledge base in environmental, social, economic, technical and practical fields as a basis for integrated planning and design. It is our belief that ecologically based design principles can be applied to both new and existing communities in an environmentally appropriate and cost effective manner.

Urban Ecology's team of professionals includes architects, landscape architects, planners, engineers and environmental consultants. Collectively we have the capacity to provide sustainable solutions to the wide range of development and environmental issues facing individual clients and communities. Our collective project experience is broad and includes:

- Community planning;
- Open space planning;
- Infrastructure planning;
- Design guidelines;
- Technical research and standards; and
- Site and building design.

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#### Active Geographic Market(s):

Canada  
China  
Japan  
United States

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## Company Profile

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### Recent Project(s):

**Name:** Vancouver Healthy House, Vancouver, B.C.

**Description:** Canada Mortgage and Housing Corporation sponsored a competition to design and build innovative housing demonstration projects that made minimal demands on the resources of the outdoor environment while affording their occupants a healthy indoor environment. The Vancouver Healthy House won the award for Canada. The house design dealt with four main areas of concern: resource efficiency (using less materials and recycled materials); energy efficiency (using 1/4 of the energy of a typical house); occupant health (using non-toxic materials and exceptional indoor air quality heating and ventilation); affordability and economic feasibility (using durable materials, simple, open design and compact). The project is a great success and has given Urban Ecology the tools and technologies to create advanced, sustainable houses.

**Name:** Porpoise Bay Village, Sechelt, B.C.

**Description:** This community planning study was initiated for a rezoning of 110 acres of waterfront property. The owner hired Urban Ecology to design a sustainable community, to provide higher quality housing and to benefit future generations by integrating ecological principles. Our report titled 'The Seven Principles of Sustainability' ensured the rezoning of the property. It won the enthusiastic support of the Sechelt Planning Department to the extent that they developed a set of planning guidelines also based on our report. The community plan integrates pedestrian friendly streets, a variety of housing types, mixed uses, water and energy efficient building guidelines, the preservation of natural areas on the site, and an incremental growth strategy.

**Name:** Popkum Solar Aquatics, Popkum, B.C.

**Description:** The Solar Aquatics project is designed to service a community of 1,000 homes and businesses. The facility is unique in its integration of a number of complimentary uses that form an "industrial ecosystem." It includes a sewage treatment plant, a public arboretum, business offices, horticulture operation, and Solar Aquatics component manufacturing. The facility will produce clean irrigation water, thousands of beneficial plants, full time employment for 5-7 people and be a model utility that benefits both the environment and the community. Urban Ecology recently undertook a land use study of this facility and the surrounding agricultural area. This land required water to become productive and the Solar Aquatics provide the necessary water.

**Name:** Knox Street Cohousing, New Westminster, B.C.

**Description:** This innovative form of housing is unique in that it is developed by the future residents with all decisions made by consensus and incorporating extensive common facilities for the benefit of the residents. With the residents acting as the developer, they can base decisions on long term benefits as opposed to short term profits. The Knox Street Cohousing group has placed a significant emphasis on environmental features. These include, durable and healthy materials, energy efficiency, rainwater collection, edible landscape, recycling systems and composting facilities.

During the process, the community becomes a close knit group in which the social community is formed long before the buildings are built.



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## Company Profile

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**Name:** Hazelmere Organic Farms, Surrey, B.C.

**Description:** The Ecological Homebase/Workplace Project for Gary & Naty King of Hazelmere Organic Farms is the first phase of a long term sustainable food production system for small family farms. The building design is the synthesis of ecological sustainability principles, including healthy materials, energy efficiency, passive solar energy use, home-based workplace, integrated greenhouse, permaculture landscape and places for grandparents and guests.

Phase Two was a predesign study for a Demonstration Organic Farm which has been completed. It examined the integration of composting systems with solar greenhouses and coldframes for the production of organic market garden products. It was funded by the National Research Council with technical assistance from University of B.C., Bio-Resource Engineering Department.

**Name:** Fitchburg Centre, Fitchburg, Wisconsin

**Description:** The Fitchburg Center General Development Plan calls for a pedestrian oriented, residential community made up of clusters of housing set into the woods, a mixed use commercial town center comprising some retail, some small office units and some apartments, and future additional high technology research and small production facilities. The plan is highly conservation oriented. It places a great deal of emphasis on natural drainage conditions, forestation pattern and natural topography. It uses the concept of separating automobile and pedestrian traffic. This includes a comprehensive system of small private roadways with bicycle lanes, and separate pedestrian and ski trails.

In all aspects, environmental concerns are given the highest value. Building design, layout and quality of materials reflect a perspective of looking ahead 50 or 100 years, not just the next 3 to 5 years, as is typical of most real estate developers.

**Name:** Environmental by Design

**Description:** Materials Specification Guide

This products specifications binder guides the designers and builders of buildings to the best environmental choices when it comes to creating homes, offices and any building application. It features a varied list of criteria for rating materials from their toxicity to the energy used to produce the material. Yearly updates kept this professional binder up to date with the many changes occurring in the marketplace.

**Name:** Beausoleil Solar Aquatics, Errington, B.C.

**Description:** The Beausoleil Solar Aquatics System is the first natural sewage treatment system of its kind in British Columbia. The system was installed to fix a failed septic system in a mobile home park. The septic system was polluting the ground water, creating odours and a posing a health hazard. The Solar Aquatic system is housed in a greenhouse with an attached lab and living quarters. The process is producing excellent quality effluent without odours in a beautiful setting. The community is growing bedding plants for their gardens and aquatic plants are being sold to local nurseries. Future plans include installation of an aquaculture and hydroponic growing system that produces revenue generating plants.

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## Company Profile

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### VEL Engineering

**Address:** #305 - 1200 West Pender Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 687-1800

**Postal/Zip:** V6E2S9

**Fax:** (604) 687-1802

**E-Mail:** info@veleng.com

**Web Site:** www.veleng.com

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#### Key Contact(s):

**Name:** Mr. Ken Newbert

**Pos Title:** Partner

**E-Mail:** info@veleng.com

**Tel:** (604) 687-1800

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**Branches:** Vancouver

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#### Business Description:

The firm specializes in design of HVAC, plumbing and fire protection systems for all types of buildings.

VEL Engineering believes that satisfying clients' needs is the primary objective. This is accomplished by utilizing innovative design techniques and staying on the leading edge of systems technology, keeping in mind that our clients have budgets and schedules and often clients of their own. Involvement with a building does not end when the switch is turned on. We are, and always will be, remembered for the projects we work on and endeavour to make every one an example of the quality, attention to detail and follow-up service essential to successful projects.

All of our field work, inspections, meetings, etc., are performed by our project managers as they are the most familiar with the design parameters and history of the project. By having our project managers attend to all field work, there are no delays in the decision making processes on site.

VEL Engineering provides the following comprehensive range of services:

- Design of mechanical systems.
- Inspection of mechanical systems.
- Reports and special studies.
- Building site inspection.
- Special laboratory services.
- Central heating/cooling plants.

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#### Active Geographic Market(s):

Canada

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## Company Profile

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### **Recent Project(s):**

**Name:** Pacific Blue Cross Building, Burnaby, B.C.

**Description:** Pacific Blue Cross Building

**Name:** Crestwood Corporate Centre, Richmond, B.C.

**Description:** Buildings #2 and #8.

**Name:** ClearNET Building, Richmond, B.C.

**Description:** ClearNET Building

**Name:** Airport Executive Park, Richmond, B.C.

**Description:** Building 10.

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## Company Profile

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Wade Williams

de Hoog + D'Ambrosio architects in joint venture

**Address:** 914 Gordon Street

**City,Prov:** Victoria, BC

**Phone:** (250) 384-2400

**Postal/Zip:** V8W1Z8

**Fax:** (250) 380-6811

**E-Mail:** twwc@twwc.com

**Web Site:** www.twwc.com/www.dda.bc.ca

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### Key Contact(s):

**Name:** Mr. Terence J. Williams

**Name:** Mr. Peter de Hoog

**Pos Title:** Partner

**Pos Title:** Partner

**E-Mail:** twwc@twwc.com

**E-Mail:** pdh@dda.bc.ca

**Tel:** (250) 384-2400

**Tel:** (250) 384-2400

**Name:** Mr. Frank D'Ambrosio

**Pos Title:** Partner

**E-Mail:** tda@dda.bc.ca

**Tel:** (250) 384-2400

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**Branches:** Victoria

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### Business Description:

The Wade Williams Corporation is a firm of architects, formed in 1946 as Birley, Wade and Stockdill, and registered as the Wade Williams Partnership in 1977. The Wade Williams Corporation has provided during the last 52 years, prime consulting services in the areas of architecture, urban design and interior design.

In 1999 Wade Williams with de Hoog + D'Ambrosio Architects of Victoria decided to combine the resources of the two firms and practice in joint venture. de Hoog + D'Ambrosio was incorporated in 1991 and is a partnership of Francesco D'Ambrosio and Peter de Hoog. de Hoog + D'Ambrosio has successfully completed small and large projects for both public and private sector clients. These include, renovation and adaptive reuse of historic and industrial buildings and brown field sites, design of new multiple residential, retail, office, industrial and civic buildings as well as mixed-use complexes. The prime focus of the firm has been institutional and educational buildings which have included such diverse building types as theatres, concert halls, sports and recreational facilities, libraries, food service facilities, student residences, office buildings, general classroom buildings, lecture theatres and laboratories. The laboratories buildings have varied from simple undergraduate facilities to sophisticated and complex post graduate research laboratories. The firm's experience in educational facilities has led to an extensive knowledge of campus planning and these services have been provided to universities, community colleges, and public and independent schools.

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## Company Profile

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For the last 15 years, the firm has worked diligently in the area of environmental design in all their buildings. The design approach has been that of a common sense approach to sustainable design demanding high performance through low impact interventions of the perimeter building envelope. This sustainable building design approach has been used on a variety of building types including offices, classrooms, laboratories, theatres and libraries. The buildings have been designed for public and private institutions and have considered special applications of daylighting, high performance exterior envelopes, natural ventilation, environmental control systems, indoor air quality, including night purging of the facility and the selection of building materials that have a low embodied energy and are safe and non-toxic. At the same time an emphasis has been placed on buildings that are of low maintenance, ones that have reduced operating costs and buildings that are designed to be the same cost that is without premium, to that of a traditional capital building cost.

In recent years strategic alliances have been established with the following architectural firms: Young + Wright of Toronto, Canada; Edgar Wade, Perth, Australia; Wise Miller, Seattle, U.S.A.; Architectura of Vancouver, B.C.

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### Active Geographic Market(s):

Canada

United States

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### Recent Project(s):

**Name:** Centra Gas Operations Centre, Victoria, B.C.

**Description:** This 2,322 square meter, maintenance and warehouse facility was constructed for \$2.5 million including the incorporation of green buildings initiatives on the Selkirk Waterfront industrial zone.

**Name:** The Nanaimo Port Theatre, B.C.

**Description:** The Theatre opened in 1998 and has been designed as an energy efficient, sustainable 'green' building. The auditorium and stage area are separated twice from the exterior by means of a special separation between the inner and outer walls and a further structural space separation within the outer skin. The double separation, high levels of insulation and high performance glazing reduce heat transmission. In turn, heating and cooling systems can be smaller and operating costs reduced. Interior ambiance will be controlled by placing low-velocity air supply ducts below the level of the theatre lighting systems, which emit considerable heat. The reinforced concrete structure will have stucco exterior utilizing a rain-screen principle to keep out the rain and reduce heat gain and heat loss. Further greening has been achieved by selecting low environmental impact materials where possible. The interior design and materials also reflect the sea and forest character of Vancouver Island. The project was opened to rave reviews in September 1998 and has been published and exhibited internationally.



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## Company Profile

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**Name:** The Centre for Innovative Teaching, Victoria, B.C.

**Description:** The C.I.T. is a single storey building at the University of Victoria incorporating innovative teaching and learning programs. The building incorporates high levels of insulation and high performance window systems. Due to the incorporation of a high volume low velocity air system, no air conditioning cooling system operates in the building and, due to effective insulating windows, no perimeter heating system exists.

**Name:** Malaspina University-College, Nanaimo, B.C.

**Description:** Malaspina University-College presents the opportunity for a thorough and comprehensive example of integration of sustainable buildings into an existing campus. The campus, however, has been radically redesigned and reconstructed in order to incorporate sustainable building design principals. The campus has incorporated a bus loop, consolidated parking, introduced additional landscaping and developed a strategy of open spaces between buildings as part of a comprehensive approach to barrier free campus planning and design that is at the same time environmentally responsible.

In addition, five new buildings have been constructed and six existing buildings have been enlarged to incorporate sustainable building principals. An additional five buildings have been designed and are awaiting construction to go to tender. All of these buildings, new additions and renovations have been designed and constructed as high performance sustainable green buildings. As a result of Malaspina's comprehensive approach to campus planning and building design, Malaspina recently received an Exemplary Practices Award from the Community College Business Offices Association. This was the first time that a Canadian Institution received this award.

With \$26.0 million of new construction, incorporating Green Building strategies into all projects, has resulted in a 20.2% reduction of annual operating costs.

It is anticipated that next phase of campus restructuring and additional steps to reduced energy consumption and improving users well being, will be the Applied Studies Trades and Technology Consolidation Program.

Malaspina University-College is a fine example of a dedicated approach to constructing and managing 'Green Buildings' that are smart and cost effective.

**Name:** The Arc Building, Victoria, B.C.

**Description:** A 10,200 square meter commercial office building, located on a prominent site at the award winning Selkirk Waterfront development is part of a comprehensive reclamation project of a former brownfield industrial site.

**Name:** Envelope Replacement, Victoria, B.C.

**Description:** The Richard Blanshard Building, owned and operated by BCBC, is 45 years old and in need of renovation. A comprehensive study was undertaken in order to determine the most cost effective solution to replacing the building systems and exterior cladding. High performance glazing and utilizing the existing sun shades proved to offer extensive savings in cost and energy consumption. Construction is scheduled for the summer 2000.



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## Company Profile

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**Name:** Engineering Office Wing, Victoria, B.C.

**Description:** The Engineering Office Wing was opened in 1988 and at the time it was touted as the "most energy-efficient in B.C." This five storey office building utilized, for the first time at the University of Victoria, high performance curtain wall glazing systems with opening windows.

**Name:** Engineering Laboratory Wing, Victoria, B.C.

**Description:** The Engineering Laboratory Wing, planned and constructed in the south zone of the ring road of the University of Victoria, was completed in 1995. It received a BC Hydro Power Smart Award for Energy Efficiency in 1996 and has been illustrated extensively in technical and design publications, including Environmental Building News and the Rocky Mountain Institute's Green Development. As a result of the integrated design approach and comprehensive control systems, this \$19.8 million building was tendered \$1.0 million below budget and completed on time without increased design fees.

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## Company Profile

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### Waterfront Plus Architecture and Planning

**Address:** 1271 Selkirk Drive

**City,Prov:** Nanaimo, BC

**Phone:** (250) 741-9805

**Postal/Zip:** V9R5Z5

**Fax:** (250) 741-9808

**E-Mail** arniful@home.com

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. Arni Fullerton

**Pos Title:** Principal

**E-Mail:** arniful@home.com

**Tel:** (250) 741-9805

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**Branches:** Nanaimo, Playa Del Carmen - Mexico

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#### Business Description:

Waterfront Plus Architecture and Planning was established in 1995 to focus primarily on waterfront development, world wide in the sustainable community and resort sectors.

Our teams include architects, land use planners, interior designers, marine engineers, environmentalists and experts with knowledge in solar, wind and hydrogen energy sources, ground and air source cooling and heating and biologically based solar sewage treatment systems.

The organization has brought together a team of individuals which we call our "Green Team," with a rich and varied background and skill base and a common commitment to mitigating the environmental impact of building and development.

The organization's work includes ecologically sound resort development, luxury condominiums and hotels and a variety of public sector projects. Lengthy predecessor firm experience dating back to the late sixties includes the community development planning, institutional, commercial, cultural heritage restoration and residential sectors.

The experience in the community development sector includes leading teams in the revitalization of major inner city neighborhoods, downtown areas and a 21st century strategy for a major Japanese city.

Offices are connected via modems and the Internet for the exchange of information. Computers are used for design, 3-D modelling, presentation images, construction documents and project management.

The multi-cultured team has members who are fluent in English, Spanish, French, German, Swedish, Norwegian and Polish.

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## Company Profile

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### Active Geographic Market(s):

Canada  
Mexico  
China  
Caribbean  
United States

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### Recent Project(s):

**Name:** Tarzan Village, Playa Del Carmen Mexico

**Description:** An 800 hectare sustainable community utilizing solar, wind and biological solar sewage treatment systems, local building materials and indigenous building systems. Presently under construction.

**Name:** Santa Lucia & Ramon Antilla Resorts, Cuba

**Description:** Each was an \$80 million Golf and Sailing Club resort with solar and wind energy and waste water recycling systems.

**Name:** Caesar's Landing Health Centred Resort, B.C.

**Description:** This \$70 million, 300 unit "green" health resort is located at Lake Okanagan BC.

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## Company Profile

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### Yoneda & Associates

**Address:** 200 - 1190 Melville Street

**City,Prov:** Vancouver, BC

**Phone:** (604) 684-3412

**Postal/Zip:** V6E3W1

**Fax:** (604) 684-3884

**E-Mail** yoneda@uniserve.com

**Web Site:**

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#### Key Contact(s):

**Name:** Mr. Kam Hon

**Pos Title:** Partner

**E-Mail:** yoneda@uniserve.com

**Tel:** (604) 684-3412

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**Branches:** Kelowna, Regina, Saskatoon, Vancouver, Victoria

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#### Business Description:

Yoneda & Associates have been providing mechanical consulting services in Western Canada since 1965. The company offers engineering in heating, ventilation, air conditioning, plumbing and fire protection to public institutional owners and private commercial developers. This covers all aspects of building design including health care, education, office, residential, retail, hotel and institutional buildings.

Together with technical competence, we continuously investigate the feasibility of incorporating innovative, cost effective design features. Examples of energy efficient designs include:

- Geothermal technology for heating & cooling.
- Use of natural wells, lakes, ponds and seawater for condenser cooling.
- Use of natural hot pools for heating systems.
- Use of low temperature heating within the floor slab which permits maintaining lower room temperatures without affecting comfort, and at the same time maintaining maximum C.O.P. on the heat pumps.

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#### Active Geographic Market(s):

Western Canada

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#### Recent Project(s):

**Name:** Laurel Pointe Inn Hotel, Victoria, B.C.

**Description:** This hotel incorporates sea water for heat rejection on the heating and air conditioning system.

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## Company Profile

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**Name:** Gulf Islands Senior Secondary School, Ganges, B.C.

**Description:** The major criteria for the selection of the mechanical systems for the 90,000 sq.ft. Gulf Islands Senior Secondary School was the challenge of providing an environmentally sensitive mechanical system. Saltspring Island, where the school is located, is not serviced with natural gas and the consideration of using propane or oil fired boilers did not satisfy the objectives. The ground source heat pump systems does not pollute the atmosphere with objectionable flue gases or chemically laden moisture from evaporative coolers, and eliminates the concern of insidious noise pollution.

**Name:** 2211 West Fourth Avenue, Vancouver, B.C.

**Description:** This is a \$15 million mixed-use project located in the Kitsilano Community area. It includes 78 condominium units over neighbourhood retail and office space with two levels of underground parking. The complex includes a geothermal heat pump system to generate domestic hot water heating in the residential suites, and air conditioning for the commercial offices and retail units. The in ground elements consist of approximately 80 wells, each with vertical in ground piping down 250 feet.

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